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NATO PERFORMANCE ASSESSMENT QUESTIONNAIRE (PAQ): PROBLEM SEVERITY AND CORRELATION FOR SHIP MOTIONS, FATIGUE, SEASICKNESS AND TASK PERFORMANCE

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Defence R&D Canada

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Defence Research Establishment Atlantic

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Abstract

The NATO Performance Assessment Questionnaire (PAQ) was developed to obtain a large database on fatigue, motion sickness and task performance problems associated with ship motions in the naval environment. The PAQ was deployed on seven ships of the NATO Standing Naval Forces Atlantic fleet (STANAVFORLANT), during North Atlantic combat exercises in February and March of 1997. The resulting PAQ database contains over 16,500 completions of the 41-parameter 'Symptoms' and 'Performance' sections of the PAQ. This Technical Memorandum documents the wind and wave environments experienced by the ships, and examines ship motions measured on two of the ships. Detailed tables of the types and severity of symptoms and performance problems are reported for all seven ships, and correlation between ship motions and PAQ parameters are reported for one ship.

Résumé

Le questionnaire d'évaluation de performance (QEP) de l'OTAN a été conçu pour dresser une base de données sur la fatigue, le mal de mouvement et les difficultés d'exécuter les tâches, le tout lié aux mouvements des navires dans l'environnement navire. Le QEP a été déployé sur sept navires de la Force navale permanente de l'Atlantique (STAVFORLANT) lors d'entraînement au combat effectué en 1997. La base de données qui en découle contient plus de 16 500 réponses aux sections « Symptômes » et « Performance » du QEP, qui comptaient 41 paramètres. Le présent document technique consigne les conditions du vent et des vagues dans lesquels se trouvaient les navires et examine les mouvements des navires, mesurés sur deux navires. Des tableaux détaillant le type et la sévérité des symptômes et des problèmes de performance ont été dressés pour tous les sept navires et la corrélation entre les mouvements des navires et des paramètres du QEP est indiquée pour un navire.

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Executive Summary

Introduction

The requirement to reduce the size of crews on modern warships, while at the same time coping with naval tasks which are becoming more complex, has increased the importance of understanding issues which degrade human performance in the naval environment. The NATO Performance Assessment Questionnaire (PAQ) was developed to examine the effects of ship motions on fatigue, motion sickness and naval task performance. The questionnaire was deployed on seven ships of the NATO Standing Naval Forces Atlantic fleet (STANAVFORLANT), during two weeks of winter combat exercises in the North Atlantic.

Results

Over 1000 PAQ booklets were returned from the seven frigates and destroyers involved in this project. The resulting PAQ database contains over 16,500 completions of the 41-parameter 'Symptoms' and 'Performance' sections of the PAQ. Two of the more important conclusions from database analysis are: the highly significant correlation between fatigue and cognitive performance problems is at least partly influenced by ship motion effects on sleeping; and, low or 'background' levels of motion sickness are associated with serious performance problems on both cognitive and physical tasks. Many other important issues of practical and theoretical interest are also identified.

Significance

The PAQ database is a unique source of information on the types and severity of naval task performance problems, and for examining potential causal relationships between ship motions, fatigue, motion sickness, and task performance problems. The database will provide guidance on establishing priorities for future R&D on human performance, and also enables development of new modeling and simulation tools.

Colwell, J.L. 2000. NATO Performance Assessment Questionnaire (PAQ): Problem Severity and Correlation for Ship Motions, Fatigue, Seasickness and Task Performance. TM 2000-142. Defence Research Establishment Atlantic.

Sommaire

Introduction

Le besoin de réduire le nombre des membres d'équipage sur les navires de guerre modernes alors que les activités navales, qui deviennent de plus en plus complexes, doivent toujours être accomplies a augmenté l'importance qu'il y a de comprendre ce qui diminue la performance humaine dans l'environnement des navires. Le questionnaire d'évaluation de performance (QEP) de l'OTAN a été conçu pour dresser une base de données sur la fatigue, le mal de mouvement et les difficultés d'exécuter les tâches, le tout lié aux mouvements des navires dans l'environnement navire. Le QEP a été déployé sur sept navires de la Force navale permanente de l'Atlantique (STAVFORLANT) lors d'entraînement au combat effectué en 1997.

Résultats

Plus de 1 000 livrets sur le QEP ont été reçus des frégates et des destroyers qui ont participé au projet. la base de données QEP qui en résulte contient plus de 16 500 réponses complètes des sections à 41 paramètres du QEP, intitulées « Symptômes » et « Performance ». Deux des plus importantes conclusions émanant de l'analyse de la base de données sont : la corrélation très significative qui existe entre la fatigue et les problèmes de performance cognitive est pour le moins causée par les effets des mouvements du navire sur le sommeil et le faible niveau ou le niveau de fond du mal de mouvement est lié aux problèmes de performance dans les tâches aussi bien cognitives que physiques. De nombreuses autres questions importantes d'intérêt pratique et théorique sont aussi déterminées.

Portée

La base de données QEP est une source unique d'information sur le type et la sévérité des problèmes lés à la performance de tâches navales et pour examiner les relations causales possibles entre les mouvements des navires, la fatigue, le mal de mouvement et les problèmes d'exécution des tâches. La base de données servira de guide quant à établir des priorités pour les travaux de R-D visant la performance humaine et facilitera la réalisation de nouveaux outils de modélisation et de simulation.

Colwell, J.L. 2000. NATO Performance Assessment Questionnaire (PAQ) : Problem Severity and Correlation for Ship Motions, Fatigue, Seasickness and Task Performance. TM 2000-142. Defence Research Establishment Atlantic.

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1.0 Introduction

The NATO Performance Assessment Questionnaire (PAQ), was developed as an instrument for obtaining a large database on fatigue and motion sickness (MS) symptoms, and task performance problems associated with ship motions, as experienced during naval operations. This database will be used in two general ways:

1. define the types and severity of task performance problems encountered in the naval environment - this will help provide guidance for setting future priorities on human performance research, development and engineering activities; and,

2. examine correlation between task performance problems and associated fatigue and motion sickness symptoms, to determine if statistical estimators can be developed for ship design and operational guidance (at present, no analytical models exist for this purpose).

The PAQ also includes a few "other" problems on health and environmental issues (e.g. cold/flu, noise, lighting, etc.) which may identify possible relationships between task performance problems and environmental or operating procedures which are specific to individual ships.

The PAQ was deployed on seven frigates and destroyers in the NATO Standing Naval Forces Atlantic fleet (STANAVFORLANT), in February and March of 1997, during two weeks of intense, multi-theatre combat exercises. The fleet operated over a wide area off the Northwest coast of the United Kingdom, including both sheltered and unsheltered areas. Significant wave heights exceeding 9 metres with sustained average wind speeds of up to 60 knots were encountered. A total of 1026 PAQ booklets were completed and returned. The resulting PAQ database contains over 16,500 completions of the 41-parameter 'Symptoms' and 'Performance' sections of the questionnaire.

The types and severity of reported problems and key correlation between ship motions, fatigue, motion sickness and task performance are summarized in Reference 1, which focuses on a sub-set of 19 of the 41 PAQ parameters. This Technical Memorandum provides detailed information on problem severity and correlation for all 41 PAQ parameters. A companion Technical Memorandum [2] describes the PAQ project and deployment on STANAVFORLANT, documents the PAQ as deployed in five languages, and provides details on the number and reliability of PAQ responses.

This Technical Memorandum reviews PAQ responses, and then provides an overview of the methods used for PAQ analysis. The ship motions recorded on two of the seven ships are described, followed by detailed discussion of problem severity and correlation. Throughout this paper, individual ships are identified using alphabetic labels. Generally, individual ships are not identified; however, 'Ship D' is a Canadian HALIFAX class frigate.

2.0 Review of Responses and Reliability

A total of 1707 PAQ booklets were distributed, and 1026 were returned, representing 60 % of the personnel on the seven ships. The resulting database contains 16,511 completions of the Symptoms and Performance sections, in addition to other descriptive and comment fields. Table 1 summarizes the percent of PAQ booklets returned, the number of PAQ completions, and the assessment of overall reliability for questionnaire returns from each ship. Reference 2 defines the PAQ structure and contents, provides more details on the returns, and defines the procedure used to assess reliability.

Table 1: Summary of PAQ Responses and Reliability Assessment

Ship ID =>	A	B	C	D	E	F	G
Booklets returned (%)	45.6	30.5	71.6	89.6	83.9	36.7	45.5
PAQ completions	1221	620	2829	2722	5870	1454	1795
Overall reliability	med.	low	med.	high	high	med.	high

The number of PAQ completions varied between ships according to both the number of booklets returned and the number of completions per day. For example, Ship E does not have more than twice the complement as Ship D, but most subjects on ship E completed the PAQ twice per day, while those on Ship D had a lower per-day completion rate.

Note that the reliability assessment presented here attempts to determine if the PAQ responses on each ship are consistent and honest, and representative of the population. The reliability of the subjective approach used for completing the questionnaire is a different issue. In other words, it is not reasonable to expect reliable self-assessment of symptoms or problems of which the subject is not fully aware. The reliability of self-assessment is being pursued as a separate project, using stationary and moving experiments in a ship motion simulator to compare PAQ responses with independent observations and, where available, independent measurement of symptoms and performance. The results of this validation study will be reported as they become available.

3.0 Environment and Ship Motions

During the PAQ deployment, the STANAVFORLANT ships covered a wide area of operations. At any given time, each ship could be experiencing considerably different wind, wave and ship motion environments, according to the proximity of land, and the ship's tactics (i.e. speed and heading).

3.1 Wind and Waves

Figure 1 shows the variation of measured wind speed and estimated wave height from visual observations, for three ships. Ships D and E experienced the highest wind speeds, while Ships E and G reported the highest maximum wave heights. The eleven-day averages of estimated wave height were 3.1 metres for Ship D, 2.1 metres for Ship E, and 1.5 metres for Ship G.

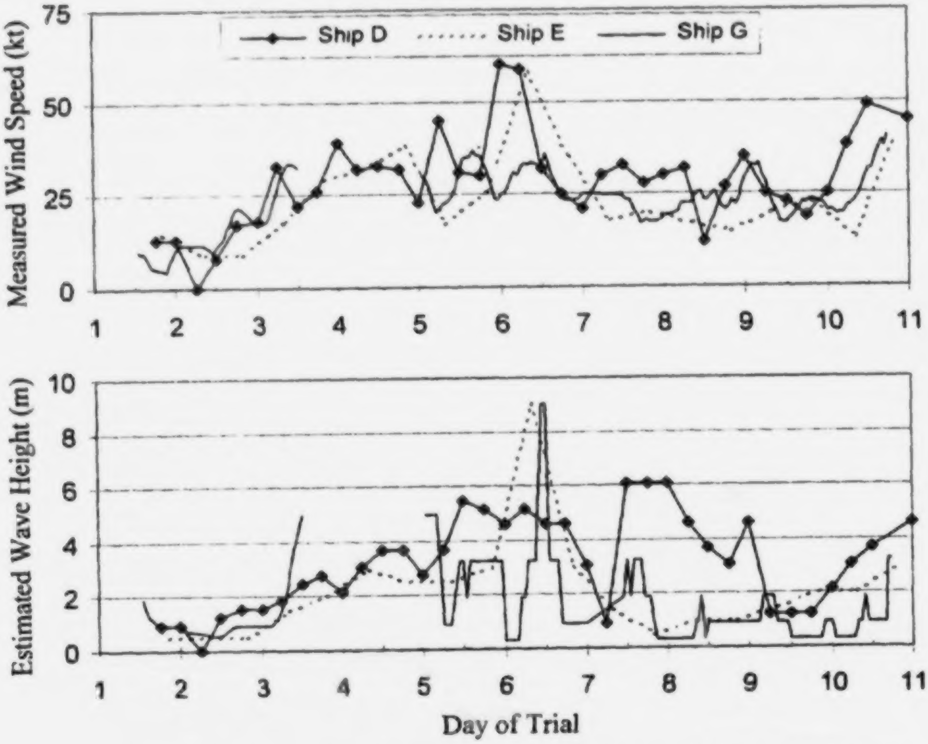

Figure 1: Measured Wind Speed (kt) and Observed Wave Height (m)

Ships D and E reported wave heights in metres, while Ship G reported 'Sea State'. The wave heights reported here for Ship G are the mean significant wave height for each sea state, following the NATO standard [3], except that the highest report from Ship G of 'Sea State 8', which varies from 9 to 14 metres, is shown in Figure 1 as 9.0 metres. The absolute accuracy of wave observations is not assessed here, but the relative trends are likely correct.

3.2 Ship Motions

Ship motions were measured on Ships D and G. Figure 2 shows RMS vertical acceleration at the centre of gravity for these ships, with twelve-hour averages shown by thick step-function lines superimposed over the irregular time series data. The twelve-hour averaging matches the expected average PAQ completion frequency, based on typical watch keeping schedules, as discussed in Section 4.3. The twelve-hour averaging provides a fairly good fit for Ship D, but not for Ship G, especially for days 3 through 6. The consequences of this poor fit for Ship G are discussed later, in Section 6.

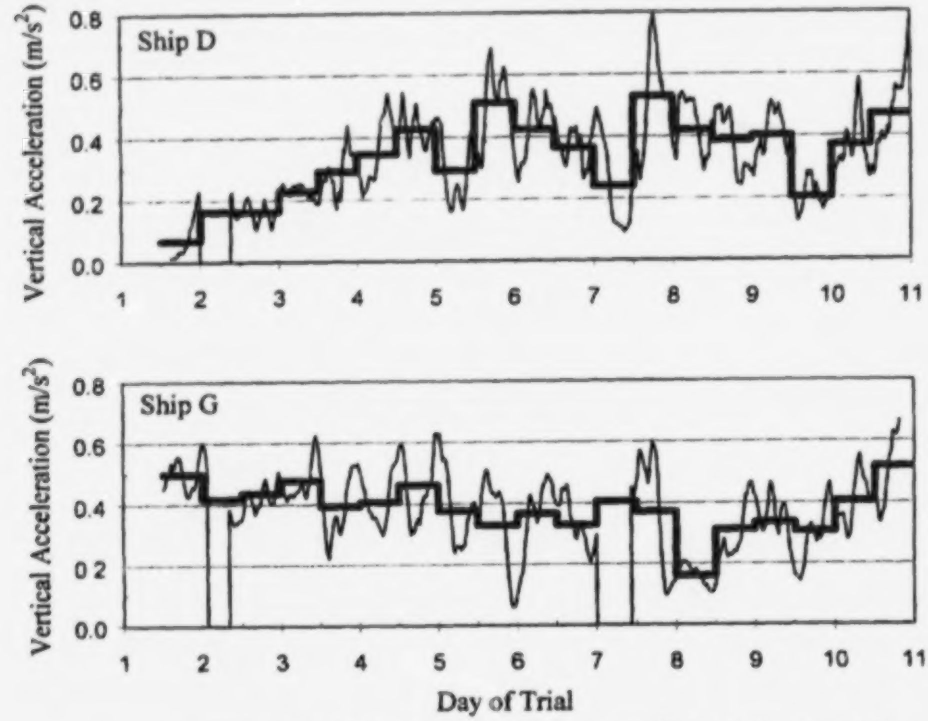

Figure 2: RMS Vertical Acceleration (m/s^2) for Ships D and G

The influence of tactics on ship motions can be seen in Figure 2. The highest RMS vertical acceleration of 0.8 m/s^2 occurred on Ship D in day 7.5, with an observed wave height of 6.1 metres. Conversely, in the highest reported waves of at least 9 metres on day 6.5, Ship G experienced RMS vertical acceleration of only

0.4 m/s^2. In the first case, Ship D was traveling at 18 knots into bow-quartering seas, while in the second case, Ship G was traveling at 7 knots, at an unknown heading relative to the waves.

Table 2 shows 12-hour averaged RMS vertical acceleration, pitch angle, lateral acceleration, and roll angle. The vertical and lateral accelerations are 'ship referenced', as measured by strap-down accelerometers. These motions are used for Ship D correlation analysis reported in Section 6.

Table 2: Ship D, 12-hour Averaged RMS Motions

Day of Trial	Vertical Accn. (m/s^2)	Pitch Angle (deg)	Lateral Accn. (m/s^2)	Roll Angle (deg)
1.5	0.067	0.59	0.202	2.64
2.0	0.163	0.43	0.488	2.29
2.5	0.162	0.49	0.361	1.56
3.0	0.227	0.54	0.342	1.43
3.5	0.291	0.57	0.464	1.80
4.0	0.346	0.78	0.395	1.43
4.5	0.427	1.07	0.703	2.74
5.0	0.292	0.61	0.538	2.32
5.5	0.512	1.25	0.921	3.63
6.0	0.425	1.00	0.679	2.74
6.5	0.365	0.95	0.659	2.64
7.0	0.240	0.60	0.529	2.21
7.5	0.530	1.31	0.600	2.17
8.0	0.420	1.19	0.877	3.61
8.5	0.386	0.99	0.809	3.44
9.0	0.402	1.08	0.731	3.05
9.5	0.202	0.51	0.416	1.82
10.0	0.372	0.89	0.665	2.81
10.5	0.470	0.99	0.462	1.77

4.0 Overview of Analysis

This section briefly reviews the scoring of subject responses on the questionnaire, and defines the 12-hour time base used for analysis. Methods used for defining the Weighted Severity (WS) scale and for correlation calculations are described, followed by definition of the subject groups used for problem severity and correlation analysis.

4.1 Scoring subject responses

Most of the PAQ parameters are scored on a four-point scale, using checkboxes to select responses from zero through three; corresponding to none through severe. The sea sickness (SS) scale is scored on an eleven-point scale (0 through 10). In all cases, the higher score corresponds to a more severe problem. A score of zero indicates the described condition or problem is reported as 'not present'. Most other parameters are scored on a two-point scale (i.e. yes/no), where no is scored as zero, and yes is scored as one. Table 3 identifies the parameter numbers, Np, provides brief descriptions and defines the response scales for the 41 PAQ parameters. More details on these parameters are reported in [2].

Table 3: PAQ Parameters and Response Scales

Np	Description	Scale
1	Sleep Quality	0 - 3
2	Sleep Time	0 - 3
3	Sleep Motions	0 - 3
4	Sleep MS	0 - 3
5	Sleep (other)	0 - 3
6	Mental Fatigue	0 - 3
7	Physical Fatigue	0 - 3
8	Sleepy	0 - 3
9	Headache	0 - 3
10	Apathy	0 - 3
11	Tension	0 - 3
12	Vomit	0 - 3
13	Nausea	0 - 3
14	Stomach Awareness	0 - 3
15	Symptom (other)	0 - 3
16	SS	0 - 10
17	MS Medicine	0 - 1
18	Decision Making	0 - 3
19	Concentration	0 - 3
20	Memory	0 - 3
21	Simple Tasks	0 - 3

Np	Description	Scale
22	Balance	0 - 3
23	Carrying / Moving	0 - 3
24	Hand Coordination	0 - 3
25	Vision	0 - 3
26	Performance (other)	0 - 3
27	More Mistakes	0 - 1
28	Longer Time	0 - 1
29	Not Finished	0 - 1
30	Abandoned	0 - 1
31	Not Attempt	0 - 1
32	Completion (other)	0 - 1
33	Cold - Flu	0 - 3
34	Air Quality	0 - 3
35	Noise	0 - 3
36	Vibration	0 - 3
37	Too Bright	0 - 3
38	Too Dark	0 - 3
39	Too Hot	0 - 3
40	Too Cold	0 - 3
41	Other (other)	0 - 3

4.2 Null Responses

Every case where a subject did not provide input for a PAQ parameter is defined as a null response, and scored as '-1' in the PAQ database. These null responses are documented in Reference 2, and are incorporated in the reliability assessment summarized earlier.

For the analyses reported in this document, all null responses are counted as a response of zero (i.e. no problem). The first PAQ summary study, reported at [1], did not include null responses in the analysis, and so only parameters with an explicit '0' response were scored as zero. The effects of scoring nulls as zero vs. not including them is small for those parameters considered in the RINA paper, as they had high response rates (i.e. very few nulls). Section 6.4 discusses differences in correlation between the RINA paper and this document, which are all small, and do not affect conclusions.

Null responses are counted as zero for the current analysis to cope with PAQ parameters which had low response rates (i.e. many nulls). In general, all of the 'other' parameters (Np = 5, 15, 26, and 32 in Table 3) and many items in the 'Other Problems' category (Np = 36 to 41) had high rates of null responses, varying from 30 to above 90%. For example, consider reports of sleep quality problems (included in [1]), and reports of 'lighting too bright' (not included in [1]). The percent of null responses on Ship D for these parameters were, respectively, 1.4 and 76.9 percent. In other words, only 1.4 percent of all PAQ completions did not have a 0, 1, 2 or 3 check-box marked for sleep quality, while 76.9 percent of the 'too bright' check-boxes were un-marked. The effect of changing from excluding to including nulls is small for sleep quality but quite large for 'too bright', their respective weighted severity (WS) scores (defined in Section 4.4) change from 27.5 and 17.8, to 27.2 and 4.1 percent.

4.3 Time-Base and Day Of Trial

The PAQ data are analysed on fixed 12-hour intervals, giving first-half days (00:01 to 12:00 hours) and second-half days (12:01 to 24:00). On all time axes in subsequent figures, the integer part of the day number (e.g. day 4.0) corresponds to the first half-day, and the 'half' part (e.g. day 4.5) is the second half-day. This approach was taken to account for the most common watch rotation system, where crew members generally stand watch twice per day, once in the first half, and again in the second half.

The weighted severity (WS) and correlation results reported here are based on PAQ data for days 1.5 through 10.5, whereas the actual trial period extended from day 0.0 through 11.5 (12 days at sea). Figure 3 shows the daily response rates over the entire trial period, for all ships. For each ship, the number of subjects completing the PAQ during each 12-hour interval is plotted, expressed as the percent of the number of subjects returning PAQs from that ship. The response rates for days 0.0 through 1.0, and days 11.0 and 11.5, are very low, and therefore these data are excluded from subsequent analysis. Excluding the first days means that the 'onset' of motion sickness cannot be examined, but this is a moot point, as the crews had significant habituation [3] from previous weeks at sea.

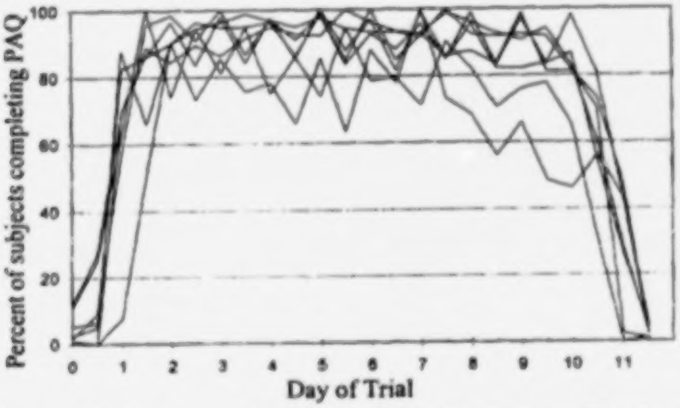

Figure 3: Daily response rate for each ship (percent of PAQ returns).

4.4 Weighted Severity

A Weighted Severity (WS) score, expressed as percent of maximum possible score, is used to quantify problem severity. The general form of WS is:

$$WS = \frac{100 \sum_{i=1}^{I\max} i N_i}{I_{\max} \sum_{i=0}^{I\max} N_i}$$

where, 'i' denotes the response score, $I_{\max}$ is the maximum score in the response scale (see Table 3), and N_i is the number of subjects reporting score 'i'.

For the four-point scale, $I_{\max} = 3$, and WS is calculated as follows.

$$WS = \frac{100\ (N_1 + 2N_2 + 3N_3)}{3N_{subjects}}, \quad N_{subjects} = N_0 + N_1 + N_2 + N_3$$

where, N_0 is the number of subjects scoring '0' (no problem), N_1 is the number of subjects scoring '1' (mild problem), and so on. As discussed earlier, N_0 includes the number of subjects who did not respond at all (i.e. null responses).

For parameters with the two-point 'yes/no' scale, WS reduces to percent of subjects responding yes (i.e. 100 N_1 / $N_{subjects}$), and for the eleven-point Seasickness Scale (SS), the WS summation expands to the maximum score of 10.

4.5 Correlation

The correlation analysis reports Pearson linear correlation coefficients, r, and statistical significance, p-level, calculated using the two-tailed Student's t-distribution.

4.6 Subject Groups

Subjects are separated into groups according to motion sickness severity, and according to the type of tasks that they normally perform. In following figures and tables, the label '**all N**' is used to distinguish data for all subjects from the following subject groups.

4.6.1 Motion Sickness (MS) Subject Groups

Subjects are grouped according to individual reports of motion sickness (MS) severity. For each subject, the average MS severity, MS^*, is calculated as the sum of numeric responses to the PAQ vomit, nausea and stomach awareness parameters (Np = 12, 13 and 14, in Table 4), divided by the number of PAQ completions for the subject.

There are two major motion sickness (MS) groups:

- **no MS** $MS^* = 0$, for subjects who never reported any positive scores for *vomit*, *nausea* or stomach awareness over the entire trial; and,
- **any MS** $MS^* > 0$, for the remainder of subjects, who reported at least one score above zero for the three MS parameters.

The 'any MS' group is separated into two sub-groups:

- **low MS** lowest 50^{TH} percentile of the 'any MS' group, based on MS^*; and,
- **high MS** highest 50^{TH} percentile of the 'any MS' group, based on MS^*.

Table 4 summarizes the distribution of subjects in these MS groups.

Table 4: Summary of MS Subject Groups

	Ship							
Subject Group	A	B	C	D	E	F	G	Ave.
all Subjects (n)	71	54	194	175	300	88	109	-
no MS (%)	73.2	46.3	66.5	49.1	45.3	45.5	40.4	52.3
any MS (%)	26.8	53.7	33.5	50.9	54.7	54.5	59.6	47.7
low MS (%)	14.1	27.8	16.5	25.7	27.3	27.3	30.3	24.1
high MS (%)	12.7	25.9	17.0	25.1	27.3	27.3	29.4	23.5

Subjects in the high MS group are not *highly susceptible* to motion sickness. As discussed later, the overall severity of motion sickness incidence (vomiting) and of MS symptomatology (nausea and stomach awareness) were not high.

4.6.2 Task-Type Subject Groups

Subjects are also assigned to either a **cognitive** or **physical** subject group, according to the primary character of the type of tasks that they normally perform.

Only Ship D has the cognitive and physical subject groups defined, with approximately equal group sizes of N = 92 and 87, respectively. The distribution of 'no MS' and 'any MS' subjects in cognitive and physical groups is relatively even: for the cognitive group, 43 % are 'no MS' and 57 % are 'any MS'; and, for the physical group, 54% are 'no MS' and 46 % are 'any MS'.

5.0 Types and Severity of Reported Problems

Figure 4 shows daily variation of problem severity for 'sleep quality', 'stomach awareness', and 'took longer' to perform tasks, for all subjects on Ship D. The first two parameters quantify problem severity using Weighted Severity (WS) scores, and the third is simply the percent reporting the presence of this task completion problem. Note that the problem severity scale for sleep quality is up to 50%, while the other two are only up to 20%. These example data illustrate the typical variation of PAQ parameters both over time and with respect to each other.

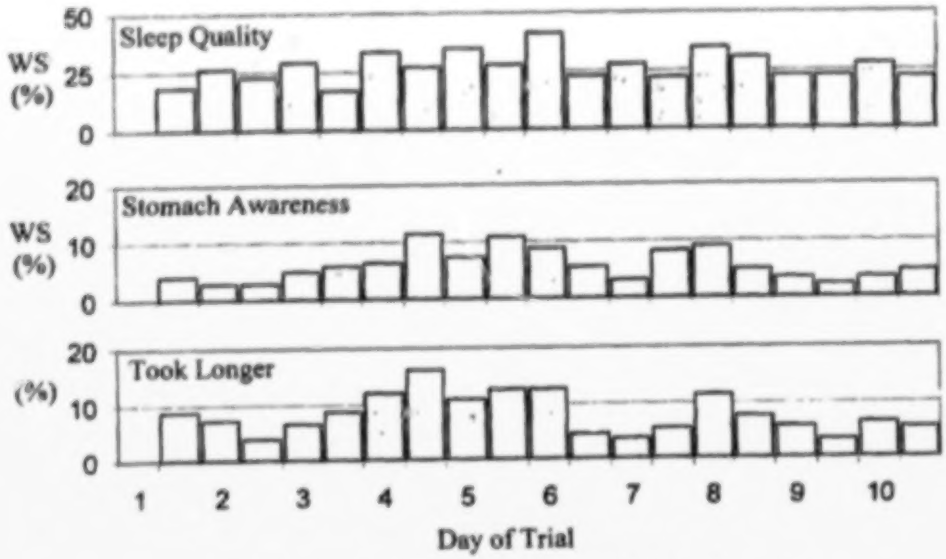

Figure 4: Sample Daily Variation of Weighted Severity

The weighted severity (WS) scale is expressed as percent of maximum (or most severe) possible score, and so the sleep quality scores of up to 40% indicate that a large proportion of the subjects reported moderate and severe problems.

5.1 Problem Severity Tables

The annexes contain detailed problem severity tables for all ships, and all subject groups, except that only Ship D has the cognitive and physical subject groups defined. The tables for each ship are in a separate annex, and the annex name is the same as the alphabetic ship ID codes. Table 5 shows the labels used for the problem severity tables in the annexes.

Table 5: List of Annex Problem Severity Tables

Subject group	Table Labels
all N	A 1.1 to G 1.1
no MS	A 1.2 to G 1.2
any MS	A 1.3 to G 1.3
low MS	A 1.4 to G 1.4
high MS	A 1.5 to G 1.5
cognitive	D 1.6
physical	D 1.7

5.2 Discussion of Results

The next two sub-sections examine the variation in problem severity between ships for all subjects, and between subject groups on Ship D. These data are averaged over the ten days of the trial, which are defined as days 1.5 through 10.5 (i.e. 12:01 on Day 1 through 24:00 on Day 10).

5.2.1 Variation Between Ships

Discussion on the variation of problem severity between ships is based on Figure 5 and Table 6, which are arranged on facing pages as a matched-pair. Both the figure and table show problem severity for all 41 PAQ parameters, averaged over days 1.5 through 10.5, for all subjects on each ship. The figure illustrates general trends, and the table defines the individual parameters and shows their numeric values.

Figure 5 contains one panel for each of the seven ships, labeled on the left side of the figure. The vertical axis on each panel is from zero to fifty percent of maximum severity. Each panel shows the variation of problem severity for all 41 PAQ parameters, which are categorized and identified by ranges of parameter numbers at the bottom of the figure, and described in more general terms at the top of the figure. The complete list of parameters is defined in the matching Table 6 on the facing page, which is sub-divided into the same categories as used in the figure, and shows the seven-ship fleet average in the last column in the table.

Table 7 shows the all-ship average problem severity for the six parameter categories, ranked in order of severity. These averages do not include the 'other' response in each of the six categories, nor is 'MS medication' included in the motion sickness category.

Table 7: Ranking of problem severity, all subjects, all ships.

Parameter Category	Problem Severity (%)
Sleep Problems	22.6
Fatigue, Sleepiness, etc.	18.4
Other Problems	14.4
Cognitive / Physical Performance	9.1
Motion Sickness	5.6
Task Completion	5.2

Responses from Ships A and B are slightly anomalous, especially for the motion sickness, task performance and task completion categories. The reports of problem severity for these categories on Ship A is relatively low, while Ship B is relatively high. The reliability assessment summarized in Table 1 shows Ship B has the only 'low' reliability rating, and so these data may be unreliable.

Reference 2 summarizes the general characteristics of the seven ships. From oldest to newest, the difference in age of first-of-class spans 32 years, and from smallest to largest, the displacement varies almost 2,000 tonnes, and length varies 26 metres. Three of the ships have all gas turbine propulsion, two have gas turbine main and diesel cruise engines, and the remaining two have oil-fired steam propulsion. Considering the variation in ship size and technology between these ships, the consistency in problem severity trends for the first five categories is remarkable. The variation in problem severity for the 'Other Problems' category does appear to be related to ship technology; however, this is not discussed further here, as it requires explicit identification of all ships.

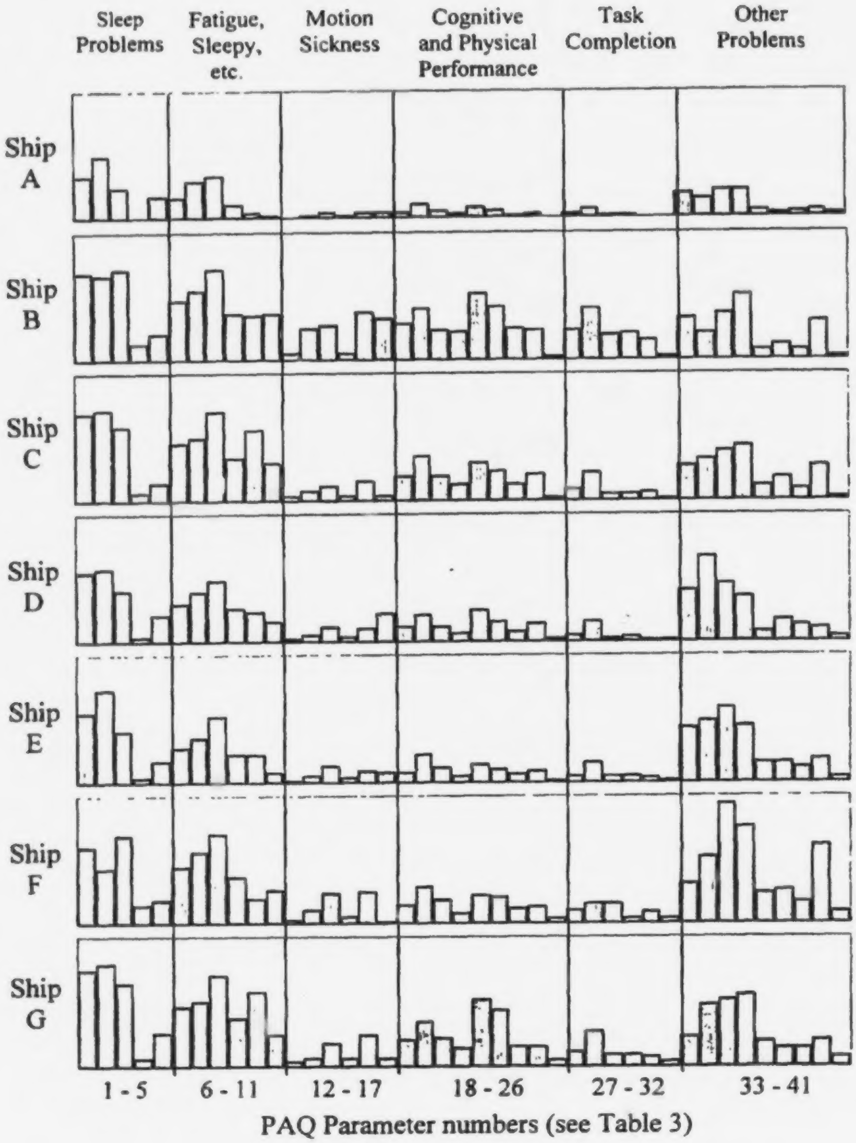

Figure 5: Problem severity, all subjects, all ships.

Table 6: Problem severity, all subjects, all ships.

	Parameter		Ship							
			A	B	C	D	E	F	G	Ave.
1	Sleep Quality	WS	16.2	34.2	34.1	27.0	27.2	29.9	37.2	29.4
2	Sleep Time	WS	24.4	32.8	35.7	28.3	36.4	21.6	39.9	31.3
3	Sleep Motions	WS	11.5	35.7	29.5	19.9	20.2	34.5	32.2	26.2
4	Sleep MS	WS	0.3	6.5	3.4	1.9	2.0	7.1	3.5	3.5
5	Sleep (other)	WS	8.4	10.6	7.2	10.5	8.6	9.2	13.1	9.7
6	Mental Fatigue	WS	7.9	23.5	23.0	14.9	13.8	21.8	22.9	18.3
7	Physical Fatigue	WS	14.6	27.4	24.5	19.4	17.4	28.0	24.8	22.3
8	Sleepy	WS	16.4	35.7	35.4	23.8	25.9	34.8	35.4	29.6
9	Headache	WS	5.2	18.2	16.9	12.9	11.2	18.1	18.3	14.4
10	Apathy	WS	1.7	17.3	28.2	11.6	11.1	9.8	28.8	15.5
11	Tension	WS	0.6	18.0	14.8	7.6	3.9	13.1	12.4	10.1
12	Vomit	WS	0.2	2.7	1.9	1.2	0.9	1.6	1.8	1.5
13	Nausea	WS	0.4	12.4	4.2	2.9	2.5	5.0	3.5	4.4
14	Stomach Awareness	WS	1.8	13.7	6.1	5.9	6.3	11.4	9.0	7.7
15	Symptom (other)	WS	1.0	2.5	2.0	1.8	2.1	2.8	3.4	2.2
16	SS	WS	1.9	19.0	7.5	5.3	4.4	12.1	12.4	8.9
17	MS Medicine	%	1.9	16.5	1.9	10.7	4.1	0.7	3.1	5.6
18	Decision Making	WS	1.8	14.5	9.8	5.9	4.1	7.0	10.2	7.6
19	Concentration	WS	5.3	20.1	17.6	10.5	11.3	14.5	17.5	13.8
20	Memory	WS	2.5	11.7	9.7	5.6	5.7	8.9	10.6	7.8
21	Simple Tasks	WS	1.3	10.8	6.6	3.6	2.9	4.1	6.9	5.2
22	Balance	WS	4.0	25.7	15.1	12.5	7.2	10.9	25.6	14.4
23	Carrying / Moving	WS	2.7	21.0	11.4	7.5	5.5	10.3	21.9	11.4
24	Hand Coordination	WS	0.8	12.6	6.5	4.0	3.1	5.8	7.8	5.8
25	Vision	WS	1.3	11.8	10.4	7.3	4.4	6.2	7.8	7.0
26	Performance (other)	WS	0.1	1.2	1.6	1.3	0.9	2.0	2.5	1.4
27	More Mistakes	%	1.1	11.9	4.9	2.6	2.7	5.4	5.6	4.9
28	Longer Time	%	3.5	20.2	11.0	8.0	7.6	8.1	13.6	10.3
29	Not Finished	%	0.6	10.0	2.7	1.5	2.8	7.6	4.4	4.2
30	Abandoned	%	0.5	10.4	2.9	2.2	2.3	1.6	4.7	3.5
31	Not Attempt	%	0.2	7.8	2.9	0.6	1.8	4.8	3.9	3.1
32	Completion (other)	%	0.3	1.4	0.6	0.5	0.3	1.7	1.7	0.9
33	Cold - Flu	WS	8.9	15.9	13.4	20.0	21.1	15.4	11.6	15.2
34	Air Quality	WS	7.0	10.7	16.5	33.0	24.2	26.1	23.5	20.2
35	Noise	WS	10.5	18.2	19.6	22.9	29.0	46.9	25.6	24.7
36	Vibration	WS	10.2	25.1	21.4	17.4	22.3	37.4	27.3	23.0
37	Too Bright	WS	2.9	4.1	5.6	4.0	7.8	11.9	9.6	6.6
38	Too Dark	WS	1.1	6.0	9.3	8.6	8.1	12.9	7.1	7.6
39	Too Hot	WS	2.3	3.7	4.3	6.8	6.0	8.6	7.1	5.5
40	Too Cold	WS	2.7	14.7	13.5	5.4	8.9	30.2	10.5	12.3
41	Other (other)	WS	1.4	1.4	1.0	1.8	1.9	4.4	3.8	2.3

5.2.2 Variation Between Subject Groups

Figure 6 and Table 8 show problem severity for the seven subject groups defined in Section 4.6, for Ship D, following the same general figure and table format as used in the previous section.

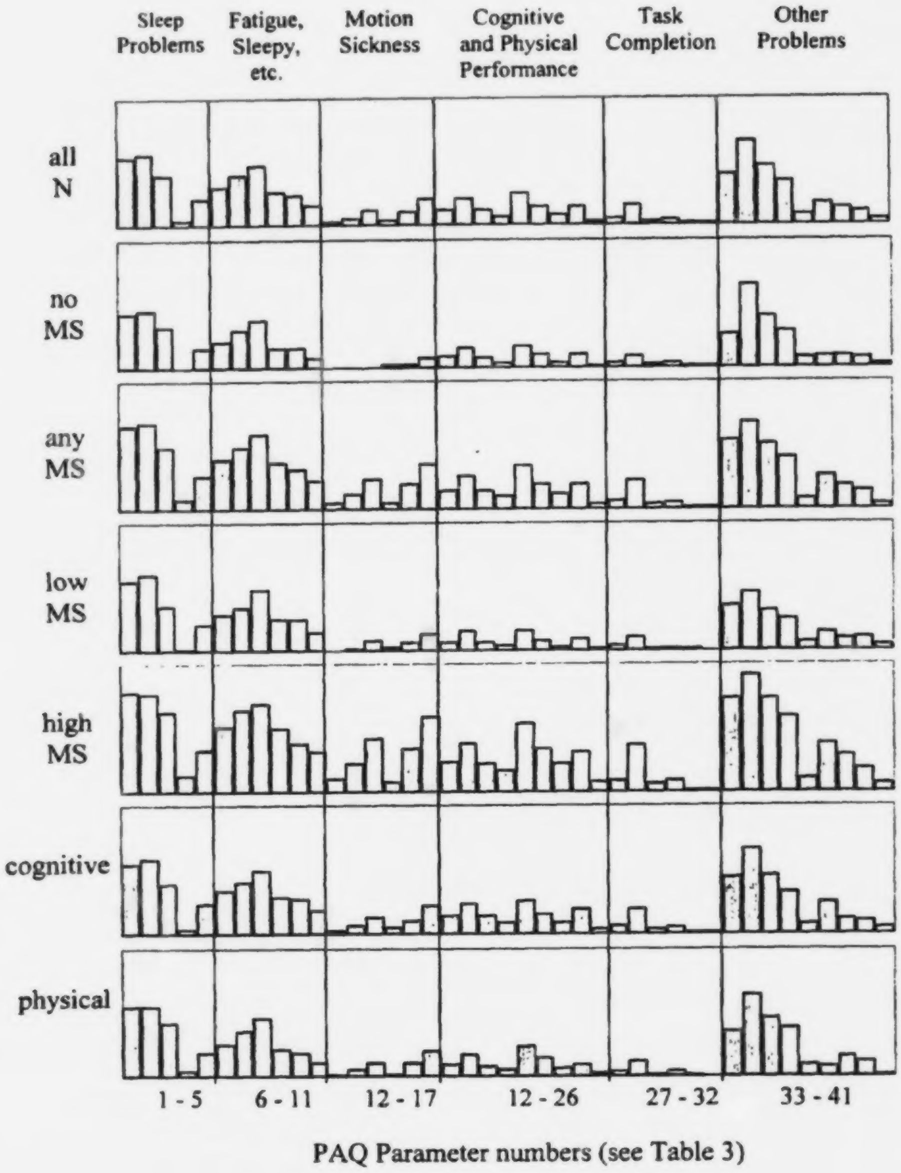

Figure 6: Problem severity, seven subject groups, Ship D.

Table 8: Problem severity, seven subject groups, Ship D.

	Parameter		Subject Group						
			all N	no MS	any MS	low MS	high MS	cognitive	physical
1	Sleep Quality	WS	27.0	21.7	32.6	27.0	38.8	27.1	27.0
2	Sleep Time	WS	28.3	22.7	34.0	30.2	38.2	29.4	27.3
3	Sleep Motions	WS	19.9	16.1	23.9	17.7	30.9	19.3	20.7
4	Sleep MS	WS	1.9	0.3	3.6	0.9	6.7	1.8	2.1
5	Sleep (other)	WS	10.5	8.0	13.1	10.1	16.3	11.7	9.2
6	Mental Fatigue	WS	14.9	10.3	19.6	14.4	25.3	16.8	12.4
7	Physical Fatigue	WS	19.4	14.9	24.0	17.0	31.7	20.3	17.7
8	Sleepy	WS	23.8	18.7	28.9	24.0	34.5	24.7	22.8
9	Headache	WS	12.9	7.5	18.4	12.5	25.0	14.5	10.6
10	Apathy	WS	11.6	7.9	15.3	12.5	18.7	13.9	8.9
11	Tension	WS	7.6	4.0	11.2	7.2	15.6	9.3	5.3
12	Vomit	WS	1.2	0.0	2.4	0.0	5.0	1.3	0.9
13	Nausea	WS	2.9	0.0	5.8	1.0	11.2	3.0	2.7
14	Stomach Awareness	WS	5.9	0.0	11.8	4.1	20.5	6.3	5.4
15	Symptom (other)	WS	1.8	1.0	2.5	1.3	3.7	2.5	0.9
16	SS	WS	5.3	1.1	9.6	3.3	16.6	5.3	5.2
17	MS Medicine	%	10.7	4.0	17.5	6.8	29.3	11.2	10.1
18	Decision Making	WS	5.9	4.7	7.2	3.5	11.4	7.3	4.4
19	Concentration	WS	10.5	7.8	13.2	7.9	19.1	12.0	8.8
20	Memory	WS	5.6	4.1	7.1	3.4	11.4	7.3	4.0
21	Simple Tasks	WS	3.6	2.1	5.0	2.0	8.5	4.7	2.3
22	Balance	WS	12.5	8.6	16.6	7.9	26.4	12.8	12.0
23	Carrying / Moving	WS	7.5	5.0	10.0	3.7	17.1	7.8	6.9
24	Hand Coordination	WS	4.0	2.3	5.8	1.1	11.1	4.5	3.5
25	Vision	WS	7.3	5.0	9.6	4.3	15.6	9.6	4.4
26	Performance (other)	WS	1.3	0.6	2.1	0.5	4.0	1.6	1.0
27	More Mistakes	%	2.6	2.0	3.1	1.8	4.6	3.5	1.8
28	Longer Time	%	8.0	4.7	11.3	5.0	18.2	9.7	5.8
29	Not Finished	%	1.5	1.1	1.9	0.5	3.4	2.0	0.9
30	Abandoned	%	2.2	1.8	2.6	0.7	4.7	2.4	2.0
31	Not Attempt	%	0.6	0.5	0.6	0.7	0.6	0.5	0.6
32	Completion (other)	%	0.5	0.7	0.4	0.0	0.8	0.7	0.3
33	Cold - Flu	WS	20.0	13.3	26.8	17.8	36.6	22.0	17.4
34	Air Quality	WS	33.0	32.7	33.5	22.7	45.6	33.3	31.7
35	Noise	WS	22.9	20.4	25.6	15.8	36.4	23.0	22.7
36	Vibration	WS	17.4	14.5	20.2	12.1	29.3	16.1	18.6
37	Too Bright	WS	4.0	3.9	4.2	3.1	5.4	3.6	4.4
38	Too Dark	WS	8.6	4.3	12.9	7.2	19.1	12.4	4.0
39	Too Hot	WS	6.8	4.7	9.0	4.3	14.3	5.7	7.8
40	Too Cold	WS	5.4	3.8	7.0	5.1	9.3	5.0	5.6
41	Other (other)	WS	1.8	1.4	2.3	1.8	3.1	2.7	0.9

Figure 6 and Table 8 show problem severity for all 41 PAQ parameters, averaged over days 1.5 through 10.5, for the seven subject groups defined in Section 4.6, on Ship D. The scale on each panel in the figure is from 0 to 50 percent of maximum severity.

The trends in problem severity between subject groups shown for Ship D are very similar to those on all seven ships, as discussed in Reference 1 for the sub-set of 19 PAQ parameters considered in that study. Table 9 shows average problem severity for the six parameter categories. These averages do not include the 'other' response in each of the six categories, nor is 'MS medication' included in the motion sickness category. The ranking of parameter categories follows the same pattern as Table 8 for five of the seven subject groups. For the 'no MS' and 'physical' subject groups, the order for 'fatigue, sleepiness, etc.' and 'other problems' is reversed, but the severity values are very close in magnitude.

Table 9: Ranking of problem severity, seven subject groups, Ship D.

	Subject Group						
Parameter Category	all N	no MS	any MS	low MS	high MS	cog-nitive	phys-ical
Sleep Problems	19.3	15.2	23.5	18.9	28.7	19.4	19.2
Fatigue, Sleepiness, etc.	15.0	10.6	19.6	14.6	25.1	16.6	13.0
Other Problems	14.8	12.2	17.4	11.0	24.5	15.1	14.0
Cognitive / Physical Performance	7.1	5.0	9.3	4.2	15.1	8.2	5.8
Motion Sickness	3.8	0.3	7.4	2.1	13.4	4.0	3.6
Task Completion	3.0	2.0	3.9	1.7	6.3	3.6	2.2

The 'high MS' subject group reports consistently higher problem severity in all PAQ categories, even though overall levels of motion sickness severity are not high. On ship D, only eleven vomiting incidents were reported, of the 2772 PAQ completions received from the ship (0.40%). Overall, a total of 106 incidents of vomiting were reported on the 16,500+ PAQ completions (0.80%). This suggests that motion sickness symptoms at low and moderate levels may affect a wide spectrum of symptoms and task performance problems.

The trends in problem severity between the cognitive and physical subject groups are very similar, although their trends for correlation are very different, as discussed in the next section.

6.0 Correlation

It is possible to develop a vast number of null hypotheses for relationships between the ship motion and PAQ parameters, but rather than explicitly stating them, the correlation study discusses only those cases with sufficiently high statistical significance to reject the associated null hypotheses.

Generally, a p-level of 0.05, which defines a 5% chance that the correlation is random, is accepted as the level denoting statistical significance; lower p-level values are more highly significant (i.e. less likely to be random); and, higher p-level values are not statistically significant (i.e. more likely to be random).

Recall that Figure 4 in Section 5 illustrated typical variation of problem severity over time for 'sleep quality', 'stomach awareness' and tasks 'took longer' to perform, for all subjects on Ship D. This figure suggests that there may be some similarity in variation over time between stomach awareness and 'took longer', but probably not between sleep quality and either of these parameters. The calculated correlation coefficients, r, and statistical significance, p-level, for these parameters are shown in Table 10, using the format convention used in the detailed annex tables, and defined below, in Table 11.

Table 10: Example Correlation, all subjects, Ship D.

	Sleep Quality	Stomach Awareness	Took Longer
Sleep Quality	1	0.436 p=.062	0.524 p=.021
Stomach Awareness	0.436 p=.062	1	**0.829** p<.001
Took Longer	0.524 p=.021	**0.829** p<.001	1

Table 11: Format for Annex Correlation Tables

Format	Meaning	p-level
bold	high significance	($p < 0.005$)
normal	significant	($p < 0.05$)
shade	not significant	($p \geq 0.05$)

Only correlation coefficient/p-level data pairs which are statistically significant are printed on a white background. Thus, shade is used for non-significant data, and also for self-correlation ($r = 1$), and for a few cases where no data exist (i.e. motion sickness parameters for the 'no MS' subject group). Bold characters highlight correlation coefficients with high significance, defined for this study as p-level lower than 0.005. P-level values greater than 0.001 are explicitly defined (i.e. the '=' sign), and lower values are denoted as '$p < .001$'. Note that the p-level values do not have a zero preceding the decimal, in order to fit the wider tables on a single page width.

6.1 Correlation Tables

Table 12 defines the subject groups and motion conditions used for the detailed correlation tables in Annex D.

Table 12: List of Annex Correlation Tables

Subject group	Table Names	
	current motions	previous motions
all N	D 2.1	D 3.1
no MS	D 2.2	D 3.2
any MS	D 2.3	D 3.3
low MS	D 2.4	D 3.4
high MS	D 2.5	D 3.5
cognitive	D 2.6	D 3.6
physical	D 2.7	D 3.7

The 'current motions' tables are for ship motions and PAQ parameters from the same 12-hour interval, while the 'previous motions' tables are for PAQ parameters from one 12-hour interval and ship motions recorded during the previous 12-hour interval. As described in more detail later, the 'previous motions' case was introduced to examine correlation between 'problems sleeping before watch' with the motions experienced before watch.

A complete correlation table for 'current motions' spans nine pages. Each page has 45 correlation parameters (4 ship motions + 41 PAQ parameters) listed vertically, and has from four to six columns, according to the category on that page, as defined below in Table 13. These categories are based on those used earlier for problem severity, but are extended to include ship motions, and increased by separating the 'task performance' and 'other' categories into cognitive tasks, physical tasks, other (1), and other (2).

Table 13: Annex Correlation Table Categories

P.	Category	Parameters
1	Motions	Vertical Acceleration, Pitch Angle, Lateral Acceleration, Roll Angle
2	Sleep	Sleep Quality, Sleep Time, Sleep Motions, Sleep MS, other
3	Fatigue	Mental and Physical Fatigue, Sleepy, Headache, Apathy, Tension
4	MS	Vomit, Nausea, Stomach Awareness, other, SS, MS Medicine
5	Cognitive	Decision Making, Concentration, Memory, Simple Tasks

Table 13: (continued) Annex Correlation Table Categories

6	Physical	Balance, Carrying / Moving, Hand Coordination, Vision, other
7	Tasks	Mistakes, Longer Time, Not Finished, Abandoned, Not Attempt, other
8	Other (1)	Cold - Flu, Air Quality, Noise, Vibration
9	Other (2)	Too Bright, Too Dark, Too Hot, Too Cold, other

This arrangement allows the reader to quickly find the appropriate table and page for a specific interest. For example, for physical task performance of the 'high MS' group, with current motions, see page 6 of Table D.2.5.

Each correlation table for the 'previous motions' case is only one page long. These tables were generated to examine correlation between reports of 'problems sleeping before watch' with the motions experienced before watch. In this case, ship motions data are shifted forward in time by 12 hours to coincide with the time of reporting the sleep problems. Since only the four ship motion parameters are shifted with respect to the 41 PAQ parameters, the first page of these correlation tables contains all new information. The correlation data for any combination of the 41 PAQ parameters remains the same as shown in the 'current motions' tables.

6.2 Correlation for Ship D vs. Other Ships

This report only presents detailed correlation data for Ship D. As discussed earlier, the 12-hour time base used for the problem severity and correlation analysis provides a good fit for the ship motions experienced on Ship D, but not for Ship G.

Preliminary correlation data for Ship G and other ships provide mixed results. In some cases, highly significant correlation trends observed for Ship D are replicated, in other cases very few significant correlations are observed, and in one case, almost all parameter combinations have significant correlation. For now, it is assumed that this is a consequence of the 12-hour time base not providing a good fit for the motions experienced on all ships. This presumes that ship motions have a cause-and-effect relationship with PAQ parameters, which is well established for motion sickness [4,5], but not for other parameters. New analysis techniques will be explored to determine if a rational approach can be developed to suit more general variation in ship motions.

6.3 Discussion of Results

One potential concern for a multi-parameter, many-subject study such as this, is that almost everything correlates (i.e. many or most parameter combinations have

$p < 0.05$). This is not the case for the current study, as summarized in Table 14, which shows the percent of parameter combinations for which correlation is not significant, is significant, and has high significance. Note that high significance is a sub-set of significant.

Table 14: Variation of significance in correlation tables.

Subject Group	Not Significant ($p \geq 0.05$) (%)	Significant ($p < 0.05$) (%)	High Significance ($p < 0.005$) (%)
all N	72.2	27.8	12.2
no MS	83.4	16.6	6.6
any MS	72.8	27.2	12.5
low MS	83.1	16.9	6.4
high MS	72.2	27.8	11.0
cognitive	75.6	24.4	10.6
physical	76.1	23.9	10.5

Many groups of PAQ parameters have similar correlation behaviour. For example, the correlation between PAQ parameters and vertical acceleration are very similar to those with pitch angle, which is reasonable as both are measures of ship vertical motion. Other groups of parameters with similar correlation behaviour include: sleep quality and sleep time; mental fatigue and physical fatigue; nausea, stomach awareness and Seasickness Scale (SS); concentration and memory; and, balance and carrying/moving things. Although these groups of parameters have similar correlation relationships in general, the actual parameters with which they correlate may be different between different subject groups.

The following correlation overview only presents correlation coefficients with statistical significance (p-level < 0.05), using a more simple format than the detailed annex tables. Correlation coefficients with high significance ($p < 0.005$) are printed in **bold** font and parameter combinations which are not statistically significant ($p \geq 0.05$) are denoted by 'x'. Corresponding p-level values can be found in the detailed annex tables.

Correlation results are presented for five subject groups: 'all N', 'no MS', 'high MS', 'cognitive' and 'physical'. Since the trends in both correlation and problem severity are generally much stronger for the 'high MS' subject group than for 'any' or 'low MS', the latter two groups are not included in this discussion, but all data are included in the annexes.

6.3.1 Motion Sickness and Ship Motions

The top part of Table 15 summarizes correlation between ship motions and key motion sickness (MS) parameters, and the bottom part examines correlation amongst MS parameters.

Table 15: Correlation - Ship Motions and Motion Sickness

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
V. Accn ~ Nausea	0.57	x	**0.69**	0.49	0.55
V. Accn ~ Stomach Awareness	**0.66**	x	**0.82**	0.52	**0.68**
V. Accn ~ SS	**0.71**	x	**0.83**	**0.71**	**0.63**
Roll Angle ~ Nausea	x	x	x	x	x
Roll Angle ~ Stomach Awareness	x	x	x	x	**0.63**
Roll Angle ~ SS	0.51	x	0.55	0.46	0.50
Stomach Awareness ~ Nausea	**0.93**	x	**0.92**	**0.85**	**0.87**
Stomach Awareness ~ SS	**0.89**	x	**0.81**	**0.73**	**0.86**
Nausea ~ SS	**0.85**	x	**0.78**	**0.71**	**0.87**

In most cases, ship vertical acceleration provides the highest correlation with all MS parameters. Ship pitch angle also correlates highly with MS symptoms, but generally at lower *r* values. In general, MS parameters do not correlate highly with ship roll angle; however, the physical group shows highly significant correlation between stomach awareness and roll angle, for which there is no apparent explanation.

The SS parameter included in the PAQ is a simplified version of TNO's Misery Scale (MISC) [6]. The bottom section of Table 15 shows consistently high correlation between nausea, stomach awareness and this scale. Since this is the first use of the simplified SS, stomach awareness is used as the primary indicator of MS in subsequent discussion, but the same trends are evident with either parameter, and in some cases, SS provides higher *r* values.

6.3.2 Sleep, Fatigue and Ship Motions

Table 16 shows correlation between problems with sleep quality and problems with mental fatigue, physical fatigue and sleepiness. Correlation results are very similar between problems with insufficient duration of sleep (i.e. 'sleep time') and the fatigue and sleepiness parameters. The consistently high correlation between problems sleeping prior to the watch, and problems reported with fatigue and sleepiness during the watch suggest that a link exists between these parameters.

Table 16: Correlation - Sleep Quality, Fatigue and Sleepiness

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
Sleep Quality ~ Mental Fatigue	**0.78**	**0.84**	0.50	0.49	**0.78**
Sleep Quality ~ Physical Fatigue	**0.75**	**0.65**	**0.69**	**0.72**	**0.66**
Sleep Quality ~ Sleepy	**0.78**	**0.72**	**0.64**	0.61	**0.73**

Table 17 shows correlation between problems with sleep quality and three parameters which allow the subject to describe causes of sleep problems, the problems were caused by: 'ship motions (bouncing around)'; by 'seasickness'; and/or by 'other'. The first of these is subsequently called 'motions *per se*', and the second is MS. These results suggest that ship motions *per se* contribute to the development of fatigue, through disturbance of sleep. Further, there may be some additional mechanism, where these effects are exacerbated by MS symptoms, for some subjects.

Table 17: Correlation - Sleep Quality and Causes of Sleep Problems

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
Sleep Quality ~ Motions *per se*	**0.80**	**0.77**	**0.83**	**0.78**	**0.76**
Sleep Quality ~ MS	**0.70**	x	0.61	**0.75**	0.50
Sleep Quality ~ other	x	x	x	x	x

Table 17 shows that no subject groups have significant correlation between sleep quality and 'other' causes of sleep problems, while the summary of problem severity shown earlier in Tables 6 and 7 indicates that a substantial number of subjects reported problems with these 'other' causes of sleep problems. Table 18 shows six categories of these 'other' sleep problems reported on Ship D, listed in order of their overall problem severity (i.e. weighted severity, WS, averaged over days 1.5 through 10.5, for all subjects).

Table 18: Problem Severity - Causes of 'Other' Sleep Problems

Description	WS (%)	Examples
health	24.9	cold, flu, headache
duties	24.1	action, flying, RAS, change schedule
non-specific	23.6	restless, uncomfortable mattress, lack of sleep
noise	15.6	people, pipes, gun, propeller
other	11.1	air quality, insomnia, dreams
undefined	0.5	

Table 19 shows correlation between ship vertical acceleration recorded during the previous 12-hour period with causes of sleep problems reported in the current 12-hour period. This allows us to examine possible relationships between problems with sleeping reported during a particular watch duty cycle with the ship motions measured prior to the watch, during the time while subjects were sleeping.

Table 19: Correlation - Previous Ship Motions and Causes of Sleep Problems

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
V. Accn (-12 hr) ~ Motions *per se*	**0.79**	**0.75**	**0.77**	**0.82**	**0.75**
V. Accn (-12 hr) ~ MS	**0.64**	**-0.70**	**0.72**	**0.66**	0.56

The highly significant, negative correlation for the 'no MS' group between reports of problems sleeping due to motion sickness (MS) and ship vertical accelerations while attempting to sleep (i.e. in the 12 hour interval preceeding the time of completing the PAQ) is mathematically correct, but has no real meaning. The number and severity of responses for sleep problems due to MS for the 'no MS' subject group are very small. Table 7 shows average weighted severity for sleep problems in the 'no MS' group are: 21.7 % for sleep quality; 22.7 % for sleep time; 16.1 % for sleep problems due to motions *per se*; and, only 0.3 % for sleep problems due to MS. This illustrates the importance of considering both problem severity and correlation coefficients when examining the PAQ results.

The correlation trends described in this section suggest that there may be a chain of cause-and-effect relationships linking ship motions experienced while attempting to sleep, with fatigue problems reported during the following watch keeping period. This cannot be proved nor disproved using the PAQ database alone, but it raises interesting considerations for future experiments and sea trials. If substantiated, this further suggests that the contemporary practice of locating ship main machinery in the centre of the ship and distributing crew sleeping quarters elsewhere should be re-examined. Requirements on older ships for a 'shallow' propeller shaft angle and overall machinery size dictated the location of the main machinery spaces. Newer technologies, such as Z-drives and podded propulsion, enable a distributed solution for main machinery in new ships.

6.3.3 Cognitive Task Performance

Table 20 shows correlation between problems with concentration and a variety of parameters. The trends shown here for concentration are very similar to those for 'decision making', memory, and 'simple tasks'. Concentration problems are used here, as they have highest correlation with the task completion problems considered later, in Section 6.3.5. In many cases, memory problems have more highly significant correlation with the parameters in Table 20 than shown for concentration, but the general trends are very similar.

Table 20: Correlation - Cognitive Performance (Concentration)

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
Concentration ~ Sleep Quality	x	x	x	x	x
Concentration ~ Sleep (Other)	0.59	x	x	**0.65**	0.52
Concentration ~ Mental Fatigue	0.50	x	x	**0.71**	x
Concentration ~ Stomach Awareness	x	x	x	x	x
Concentration ~ Cold / Flu	0.59	x	0.47	**0.62**	0.55
Concentration ~ Noise	0.53	0.53	x	0.58	x

For the cognitive subject group, problems performing cognitive tasks correlate most highly with mental fatigue, but the physical subject group does not have significant correlation for these parameters. As discussed in [1], the differences between these subject groups with respect to mental fatigue may be due to the nature of their primary activities: subjects focused on cognitive tasks may be more aware of cognitive problems; whereas, those performing physical tasks may not be aware of, or may not be using, the cognitive skills to the same degree. Note that problems with concentration and 'simple (cognitive) tasks' have significant, but lower, correlation with sleepiness (r = 0.47 and 0.55), for the physical subject group.

For 'all N', and the cognitive and physical subject groups, there is significant correlation of concentration problems with 'other' causes of sleep problems prior to standing watch, and with reports of illness and/or noise while on duty. These trends are also evident in the same subject groups for problems with 'decision making', 'memory' and 'simple tasks'. Table 18' shows that illness and noise are major contributors to complaints of 'other' problems with sleeping, along with calls to duty and other 'distractions'. It is not known if the correlation between concentration problems and illness is associated with the illness symptoms, or with being distracted by these symptoms. Section 6.3.7 examines correlation between mental fatigue, noise and MS medication.

6.3.4 Physical Task Performance

Table 21 shows correlation for balance problems with ship motions and stomach awareness. Very similar trends are evident for problems with 'carrying / moving things'.

Table 21: Correlation - Physical Task Performance (Balance)

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
Balance ~ Vertical Acceleration	**0.70**	**0.64**	**0.67**	0.57	**0.76**
Balance ~ Lateral Acceleration	**0.72**	**0.75**	0.58	**0.68**	**0.67**
Balance ~ Stomach Awareness	**0.81**	x	**0.72**	**0.64**	**0.79**

In most cases, balance problems correlate highly with ship motions, but overall (all N), and for the 'high MS' and physical task subject groups, the highest correlation for balance problems is with stomach awareness. The Motion Induced Interruption (MII) model [7,8] predicts the probability of a person sliding or tipping over, due to the accelerations induced on the person by the ship motions. Under most circumstances, lateral accelerations are the most destabilizing, with the acceleration due to gravity induced by ship roll being dominant, and vertical accelerations have secondary effects. This seems to be reflected in the correlation results for the 'no MS' and cognitive subject groups, but is not the case where high correlation is observed for stomach awareness. For the 'any MS' subject group (which is 51% of the subjects on Ship D) correlation for balance problems with the same three parameters listed in Table 21 are, in descending order, **0.64**, 0.61 and **0.77** (see page 6 of Table D.2.3). This suggests that low to moderate levels of motion sickness may affect balance in a rather profound way, and so the simple physics-based MII model is probably not adequate for all personnel.

6.3.5 Task Completion - 'Longer Time'

Table 22 shows correlation for reports that 'tasks took longer than usual' (to perform) with mental fatigue, stomach awareness and problems with concentration. Reports of 'made more mistakes than usual' have very few instances of significant correlation with any other PAQ parameters (see Annex D tables).

Table 22: Correlation - Task Completion (Longer Time)

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
Longer Time ~ Mental Fatigue	**0.71**	x	0.61	**0.82**	x
Longer Time ~ Stomach Awareness	**0.83**	x	**0.67**	**0.62**	**0.78**
Longer Time ~ Concentration	0.60	x	**0.70**	**0.67**	0.46

For all subject groups except 'no MS', 'longer time' has a fairly consistent trend of significant correlation with mental fatigue, stomach awareness, and concentration problems. For the cognitive subject group, mental fatigue has the highest correlation. The lack of correlation between 'longer time' and 'mental fatigue' for the physical subject group may be explained by the earlier discussion in Section 6.6.3. For the cognitive subject group, all four cognitive task problems (decisions, memory, concentration, and simple tasks) have significant correlation with 'longer time'; however, only concentration has significant correlation for the other subject groups, excluding 'no MS'.

For all subject groups except 'no MS', there is significant correlation between 'longer time' and concentration. As shown earlier in Table 20, problems with concentration generally correlate with 'other' sleep problems, illness and noise, and in some cases with mental fatigue, but concentration problems do not have significant correlation with stomach awareness for any subject groups. This suggests that problems with tasks taking longer than usual to perform are associated with at least two separate processes; one related to motion sickness, and the other related to mental fatigue and/or concentration.

The overall effect on task efficiency due to reports that it took longer than usual to perform the tasks cannot be determined from the PAQ data. Table 7 shows that eight percent of PAQ completions indicated the presence of this problem, but the extent of the problem is not quantified, nor is it clear that these reports reflect a real increase in time to complete tasks, or a perception of increased time. Regardless, the potential consequences of individuals with delayed task completion times on the typical naval team-based activities are serious, and merit further investigation.

6.3.6 Task Completion - 'Abandoned'

Table 23 shows correlation for reports that the subject 'had to abandon (their) tasks' with the same parameters considered in the previous section. Reports of 'tasks not completed in time available' have very few instances of significant correlation with other PAQ parameters, and correlation patterns for 'not allowed to attempt tasks' are very similar to 'abandon tasks'.

Table 23: Correlation - Task Completion (Abandon Tasks)

	Subject Group				
Correlation Parameters	all N	no MS	high MS	cognitive	physical
Abandon Tasks ~ Mental Fatigue	x	x	x	x	x
Abandon Tasks ~ Stomach Awareness	**0.90**	x	**0.89**	**0.64**	**0.92**
Abandon Tasks ~ Concentration	x	x	x	x	x

For all subject groups except 'no MS', there is highly significant correlation between 'abandon tasks' and motion sickness (nausea, stomach awareness and SS all show the same trends). For the cognitive subject group, this correlation is highly significant ($p < 0.005$), but the correlation coefficient ($r = \mathbf{0.64}$) is relatively low, and there are no instances of significant correlation between 'abandon tasks' and any of the cognitive task, physical task or task completion parameters. For the physical subject group, r = **0.92** is very large, and 'abandon tasks' correlates highly with balance problems (r = **0.80**) and tasks took a 'longer time' to complete (r = **0.79**). Section 6.3.4 on physical task performance problems, suggested that MS may have a large effect on balance, and the correlation data presented here further suggest that the MS symptoms have a similar association (i.e. possible effect) with problems performing and/or failing to perform physical tasks. Of course, the suggested picture is not nearly so clear for problems performing cognitive tasks.

For the 'no MS' subject group, here are no instances of significant correlation for 'abandon tasks' or 'not attempted' with any PAQ parameters.

6.3.7 Fatigue, Task Performance and Other Issues

Tables 24 and 25 show correlation for mental and physical fatigue, noise, and MS medication, with a variety of task performance and task completion parameters, for the cognitive and physical subject groups.

Table 24: Correlation - Task Performance, Cognitive Subject Group

	Cognitive Subject Group			
	Mental Fatigue	Physical Fatigue	Noise	MS Medication
Decision Making	0.60	0.53	x	x
Concentration	**0.71**	**0.73**	0.58	0.56
Memory	**0.75**	**0.65**	**0.70**	**0.72**
Simple Tasks	**0.64**	0.53	0.55	**0.72**
Balance	x	x	x	x
Hand Coordination	**0.71**	x	0.61	**0.75**
Longer Time	**0.82**	**0.64**	0.61	**0.72**
Abandoned Tasks	x	x	x	x

Table 25: Correlation - Task Performance, Physical Subject Group

	Physical Subject Group			
	Mental Fatigue	Physical Fatigue	Noise	MS Medication
Decision Making	x	x	x	x
Concentration	x	x	x	x
Memory	x	x	x	x
Simple Tasks	0.51	x	x	x
Balance	x	0.58	x	x
Hand Coordination	x	0.53	x	x
Longer Time	x	x	0.49	x
Abandoned Tasks	x	x	x	x

The most obvious difference between the two subject groups is that the cognitive subject group has highly significant correlation between a large number of parameters, while the physical subject group does not. The differences between subject groups with respect to mental fatigue have been discussed in Section 6.3.3. Tables 24 and 25 show similar trends with respect to physical fatigue, and so subjects performing cognitive tasks associate both mental and physical fatigue with many problems, but those performing physical tasks do not.

Table 26 shows correlation amongst fatigue, noise and MS medication for the cognitive subject group. All parameter combinations have highly significant correlation, except physical fatigue and MS medication, where correlation is not significant.

Table 26: Correlation - Fatigue, Noise and MS Medication

	Cognitive Subject Group			
	Mental Fatigue	Physical Fatigue	Noise	MS Medication
Mental Fatigue	1	**0.85**	**0.84**	**0.71**
Physical Fatigue	**0.85**	1	**0.65**	x
Noise	**0.84**	**0.65**	1	**0.69**
MS Medication	**0.71**	x	**0.69**	1

For the physical subject group, the only significant correlation amongst the parameters in Table 26 is between mental fatigue and physical fatigue (r = **0.62**). The number of subjects in the cognitive and physical subject groups taking MS medication is virtually the same, at 11 and 10 percent, respectively (see Table 7). Incidentally, stomach awareness does not correlate with any of the parameters in Table 26, for either the cognitive or physical subject groups.

For the cognitive and physical subject groups, there are only two PAQ parameters with which mental and physical fatigue have very different correlation (i.e. correlation with one fatigue symptom is highly significant and correlation with the other is not significant); these are hand coordination (Table 25) and MS medication (Table 26), for the cognitive subject group. If these correlation trends reflect an association between mental fatigue and MS medication, then it appears to be very complex, as evidenced by the corresponding high correlation with 'hand coordination' and noise problems. The possibility of interaction between mental fatigue and MS medication cannot be substantiated from the PAQ database alone, but the possible consequences are sufficiently serious that it merits further investigation.

6.4 Previous Correlation Study

In some cases, the correlation coefficients (*r*) and statistical significance (*p*-level) reported in this Technical Memorandum are different from those published in the earlier summary paper [1]. This is primarily a consequence of the two differences in analysis procedures described below. Note that these differences do not alter any of the observations, discussions, nor conclusions of previous results [1] with respect to this document.

The current analysis assumes that a 'null' response (i.e. no check box marked on the questionnaire) is the same as a response of zero (i.e. symptom not present, or no problem). The previous analysis [1] did not count nulls. This new procedure has a large effect on problem severity calculations for parameters with high null response rates (summarized in [2]), but very small effect on parameters with low null response rates. All parameters considered in the previous paper [1] had low null response rates. This difference in analysis procedures has very small effect on correlation results common to this document and [1]. In most cases, the *r* values are the same, to within two decimal places, and any differences do not exceed 0.02 (except, as discussed below).

The current correlation analysis of prior ship motions with causes of sleeping problems (see Section 6.3.2) defines ship motions on 'day 1.0' as zero. The previous analysis [1] did not define day 1.0 motions. The 12-hour time shift used in both analyses correlates motions on day 'x' with PAQ responses on day 'x + 0.5', and so the previous analysis [1] did not include PAQ responses from day 1.5, as the corresponding motions were not defined. The new approach is used for Ship D, as she was docked in a totally-enclosed harbour during day 1.0, and departed from the port to open waters at noon on day 1. This new approach produces larger *r*-values (from 0.04 to 0.05) and smaller *p*-levels in the current results than in [1].

7.0 Conclusion

The main goals for the PAQ were accomplished. A large database of fatigue, motion sickness and task performance problems associated with ship motions in the naval environment has been obtained.

In order to determine the overall effect of specific problems, we must consider both the severity of the problem, and the severity of consequences. Problems with sleep quality and fatigue have consistently high severity levels across all ships and all subject groups. Since fatigue correlates significantly with a variety of performance problems for subjects performing cognitive tasks, this may be a serious problem. Reports of problems with motion sickness have much lower severity, but they have significant correlation with physical task performance problems, and with abandoning tasks for subjects performing both cognitive and physical tasks. This suggests that low to moderate levels of motion sickness may also be a serious problem.

A variety of possible causal relationships are suggested by the high statistical significance of many correlations observed in the database. The high correlation between ship vertical acceleration and motion sickness substantiates existing knowledge. The differences in correlation for postural stability problems between subjects reporting no MS symptoms and those with MS symptoms suggests that a purely physics-based model of postural stability may be adequate only for those with no MS symptomatology. Correlation between sleep problems and fatigue, and between ship motions and sleep problems suggests a new, indirect mechanism for the long-term development of fatigue.

It is apparent that a variety of different performance effects must be considered, including: direct effects of ship motions *per se*; indirect effects associated with fatigue, motion sickness and other problems; immediate effects of current motions on current performance; and, delayed effects of past motion exposure on current and future performance.

Separating subjects according to their reporting of MS symptoms seems appropriate for examining correlation trends which may be related to physiological and psychological effects of MS. For analysis of problems with task performance and task completion, it is important to group subjects according to the cognitive or physical nature of their primary tasks.

The problem severity and, especially, correlation analyses have identified a number of potential areas for future consideration. The 12-hour time base used for correlation analysis is well suited for Ship D, but not for all ships, and so a more general approach should be developed. Problems associated with sleep quality, sleep disturbances and noise correlate highly with many performance problems, suggesting that minimizing disturbances and interruptions both on and off watch may be beneficial. The correlation between ship motions and problems with sleep quality suggests that problem severity may be correlated with the location of sleeping quarters, as the amplitude of linear ship motion (especially vertical acceleration) is highly dependent on location in the ship. Finally, reports of tasks taking longer than usual should be examined in more detail, to determine if this effect is real, and possible association between mental fatigue and MS medication should be investigated.

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Notation

ABCD	American, British, Canadian, and Dutch
Avg.	average
MS	motion sickness
MII	motion induced interruption (ship motions cause a person to stumble or slide)
N	number of responses, or of subjects
Np	parameter number (Np = 1, 41)
NATO	North Atlantic Treaty Organization
p	p-level, statistical significance
PAQ	Performance Assessment Questionnaire
RINA	Royal Institution of Naval Architects
SD	standard deviation
SS	Seasickness Scale, a simplified version of 'Misery Scale' [6]
STANAVFORLANT	Standing Naval Forces Atlantic (NATO fleet)
r	Pearson linear correlation coefficient
WS	Weighted Severity score

Summary of Annexes

Annexes A through G contain problem severity tables for ships A through G, and Annex D also contains correlation tables for ship D.

The general scheme for naming annex tables is:

Table **a.n.m:**

where, **a** is the ship ID code (A through G),
n is the type of table,
n = 1, problem severity
= 2, correlation (current motions)
= 3, correlation (past motions)
= 4, per-subject summary
= 5, response count
m is the subject group
m = 1, all subjects
= 2, no motion sickness (MS)
= 3, any MS
= 4, low MS
= 5, high MS
= 6, primarily cognitive tasks
= 7, primarily physical tasks

The per-subject summary and response count tables are only included on the PAQ data CD. Copies of the data CD can be requested from DREA.

Table A.1.1: Weighted Severity, Ship A, all subjects, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	4.69	13.64	6.56	10.45	13.33	25.93	19.67	16.16	15.48	18.28
sleep time	WS (%)	13.54	22.22	17.49	16.42	21.11	26.98	26.23	20.71	22.02	26.88
sleep motions	WS (%)	2.08	3.54	8.20	6.47	5.56	16.93	13.66	18.18	14.29	22.58
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.51	0.00	0.00
sleep (other)	WS (%)	7.29	10.10	8.74	2.99	11.11	13.23	10.38	4.04	1.19	3.23
mental fatigue	WS (%)	4.17	4.04	4.37	3.48	4.44	8.99	8.74	7.07	10.12	8.60
physical fatigue	WS (%)	9.90	10.61	8.20	10.95	10.00	15.87	16.94	14.14	12.50	14.52
sleepy	WS (%)	11.46	15.15	10.38	11.94	14.44	17.46	22.40	13.64	12.50	16.67
headache	WS (%)	3.13	4.04	6.01	5.97	4.44	7.41	6.01	7.07	7.14	6.99
apathy	WS (%)	0.52	1.52	0.55	0.50	1.67	2.12	1.09	2.02	1.19	1.61
tension	WS (%)	0.52	1.01	0.00	0.00	0.56	0.00	0.55	1.52	1.79	0.54
vomit	WS (%)	0.00	0.51	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00
nausea	WS (%)	1.04	0.00	0.55	0.00	0.00	0.53	1.09	1.01	0.60	0.54
stomach awareness	WS (%)	2.08	2.02	1.64	3.48	1.67	2.12	3.83	2.53	2.98	3.23
symptom (other)	WS (%)	1.56	0.51	0.55	4.48	1.11	2.12	0.00	0.51	0.00	0.00
MISC	WS (%)	3.13	1.52	2.13	1.34	2.17	2.54	3.93	3.18	3.04	2.10
MS medicine	WS (%)	3.13	3.03	6.56	2.99	0.00	1.59	3.28	1.52	7.14	3.23
decision making	WS (%)	0.52	1.01	0.00	0.50	1.11	2.65	2.73	3.03	1.19	1.61
concentration	WS (%)	2.08	4.04	3.83	3.48	5.00	9.52	6.56	6.57	5.36	4.30
memory	WS (%)	2.08	2.53	1.64	0.00	2.22	3.70	2.19	4.04	3.57	1.61
simple tasks	WS (%)	0.00	0.51	0.00	0.00	1.11	1.59	2.19	2.53	1.19	1.61
balance	WS (%)	3.65	3.03	2.19	1.49	2.22	4.23	4.92	6.06	7.74	8.06
carrying / moving	WS (%)	0.52	2.02	0.55	1.00	2.22	2.12	3.83	2.53	5.36	4.84
hand coordination	WS (%)	0.00	1.01	0.55	0.50	1.11	0.00	1.09	2.02	0.00	0.54
vision	WS (%)	0.52	2.02	0.55	0.50	1.11	2.65	1.09	1.52	0.00	1.08
performance (other)	WS (%)	0.00	0.00	0.00	0.50	0.00	0.53	0.00	0.00	0.00	0.00
more mistakes	(%)	0.00	1.52	1.64	1.49	1.67	3.17	1.64	0.00	0.00	0.00
longer time	(%)	3.13	4.55	3.28	2.99	1.67	4.76	4.92	3.03	7.14	6.45
not finished	(%)	1.56	0.00	0.00	1.49	0.00	3.17	0.00	1.52	0.00	0.00
abandoned	(%)	1.56	1.52	0.00	1.49	0.00	1.59	0.00	1.52	0.00	1.61
not attempt	(%)	1.56	0.00	0.00	0.00	0.00	1.59	0.00	0.00	0.00	0.00
completion (other)	(%)	1.56	0.00	0.00	0.00	0.00	1.59	0.00	3.03	0.00	0.00
cold / flu	WS (%)	9.38	9.60	7.65	9.95	8.33	7.41	8.20	9.09	8.33	9.14
air quality	WS (%)	7.29	8.08	4.92	8.96	6.67	7.41	6.01	7.07	7.14	8.06
noise	WS (%)	11.46	9.60	9.29	7.46	9.44	12.70	11.48	10.61	11.31	10.75
vibration	WS (%)	10.42	5.56	6.56	5.47	7.22	12.17	9.84	11.62	13.10	12.90
too bright	WS (%)	1.04	2.02	1.09	2.49	4.44	3.70	2.73	2.53	3.57	3.23
too dark	WS (%)	2.08	2.02	1.09	1.00	1.67	0.00	1.09	3.03	2.38	0.00
too hot	WS (%)	1.56	1.52	1.64	1.49	2.22	3.17	1.64	1.01	2.38	3.23
too cold	WS (%)	2.08	6.57	2.19	3.98	3.89	3.17	2.73	4.55	3.57	2.15
other (other)	WS (%)	0.52	0.00	0.00	1.00	0.00	0.53	0.00	1.01	2.38	1.08

Table A.1.1: Weighted Severity, Ship A, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	9.04	14.06	16.67	27.51	23.64	22.42	20.47	22.22	7.21	16.18
sleep time	WS (%)	16.95	20.83	33.33	34.39	29.70	30.91	30.41	31.58	21.62	24.39
sleep motions	WS (%)	8.47	10.94	6.90	22.22	9.09	12.12	5.85	19.30	12.61	11.53
sleep MS	WS (%)	1.13	0.00	0.00	0.00	0.00	1.82	0.00	1.75	0.00	0.30
sleep (other)	WS (%)	2.26	3.13	12.64	6.35	20.61	11.52	16.37	6.43	7.21	8.36
mental fatigue	WS (%)	7.34	6.77	10.34	11.64	9.70	10.91	8.19	13.45	8.11	7.92
physical fatigue	WS (%)	10.73	14.06	18.97	21.69	18.18	18.18	14.04	24.56	13.51	14.61
sleepy	WS (%)	10.73	11.46	24.14	22.75	19.39	21.21	19.30	22.81	14.41	16.43
headache	WS (%)	1.69	3.65	5.17	4.23	5.45	4.85	4.09	5.85	5.41	5.19
apathy	WS (%)	1.13	2.60	0.57	2.65	2.42	2.42	1.17	2.92	3.60	1.70
tension	WS (%)	1.69	0.00	0.57	0.00	0.61	0.61	0.00	1.17	0.00	0.59
vomit	WS (%)	1.69	0.00	0.00	0.00	0.00	0.61	0.00	0.58	0.00	0.23
nausea	WS (%)	0.56	0.00	0.00	0.00	0.61	0 61	0.00	0.58	0.00	0.41
stomach awareness	WS (%)	0.56	1.04	2.87	0.53	0.61	1.21	0.00	1.17	0.90	1.81
symptom (other)	WS (%)	1.13	0.00	0.00	0.00	0.00	0.61	0.00	4.09	1.80	0.97
MISC	WS (%)	0.68	1.56	1.90	1.59	1.27	1.27	0.70	1.40	0.54	1.89
MS medicine	WS (%)	0 00	0.00	1.72	0.00	0.00	1.82	0.00	0.00	0.00	1.89
decision making	WS (%)	2.82	1.04	2.30	4.23	3.03	3.03	1.17	1.75	0.00	1.78
concentration	WS (%)	3.95	4.69	6.90	7.94	6.06	6.67	4.68	5.85	3.60	5.32
memory	WS (%)	2.82	3.65	1.15	5.29	3.64	3.64	1.17	1.75	0.00	2.46
simple tasks	WS (%)	2.26	1.56	1.15	2.65	3.64	1.82	0.58	0.58	0.00	1.31
balance	WS (%)	3 39	3.13	2.30	5.29	4.24	1.82	2.34	6.43	3.60	4.01
carrying / moving	WS (%)	2.82	2.60	2.87	5.82	3.03	1.82	1.17	3.51	1.80	2.65
hand coordination	WS (%)	1.69	0.00	0.57	1.59	1.21	0.61	0.00	2.34	0.00	0.78
vision	WS (%)	2.26	2.08	0.57	1.06	1.21	1.82	0.00	4.09	0.00	1.27
performance (other)	WS (%)	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
more mistakes	(%)	0.00	0.00	1.72	3.17	3.64	1.82	0.00	0.00	0.00	1.13
longer time	(%)	1.69	3.13	5.17	6.35	3.64	1.82	1.75	1.75	0.00	3.54
not finished	(%)	0.00	0.00	1.72	0.00	1.82	0.00	0.00	0.00	0.00	0.59
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
cold / flu	WS (%)	7.34	7.81	8.05	12.70	10.30	10.91	8.19	11.11	6.31	8 94
air quality	WS (%)	6.21	5.73	7.47	6.35	8.48	7.27	4.68	7.02	9.01	7.04
noise	WS (%)	6.78	10.42	11.49	12.70	11.52	13.94	9.94	12.28	7.21	10.55
vibration	WS (%)	8.47	11.46	9.20	12.70	10.91	13.33	8.19	14.62	10.81	10.24
too bright	WS (%)	2.26	2.08	3.45	2.65	4.24	3.64	2.92	3.51	3.60	2.91
too dark	WS (%)	0.56	0.00	2.87	0.00	1.21	0.00	1.75	0.00	0.00	1.09
too hot	WS (%)	2.82	2.60	2.30	3.17	3.03	2.42	1.75	2.34	2.70	2.26
too cold	WS (%)	0.00	1.56	1.72	1.06	2.42	1.82	0.58	2.34	4.50	2.68
other (other)	WS (%)	0.00	1.04	4.02	4.23	3.03	1.21	2.34	1.17	2.70	1.38

Ave.* = average over days 1.5 through 10.5

Table A.1.2: Weighted Severity, Ship A, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	4.86	10.14	6.94	5.67	9.63	25.19	18.84	15.94	13.82	17.83
sleep time	WS (%)	11.81	18.12	13.19	9.93	16.30	26.67	21.74	18.12	18.70	25.58
sleep motions	WS (%)	2.08	2.90	10.42	3.55	2.22	18.52	14.49	16.67	10.57	19.38
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sleep (other)	WS (%)	6.94	10.14	9.03	1.42	11.85	11.85	9.42	4.35	1.63	4.65
mental fatigue	WS (%)	4.17	2.90	3.47	1.42	2.96	6.67	5.07	5.80	5.69	6.20
physical fatigue	WS (%)	9.72	8.70	7.64	7.80	7.41	15.56	11.59	14.49	8.94	12.40
sleepy	WS (%)	9.03	12.32	9.03	7.80	11.85	16.30	18.84	14.49	10.57	13.95
headache	WS (%)	2.08	2.17	4.17	2.84	2.96	5.93	4.35	5.80	5.69	5.43
apathy	WS (%)	0.69	0.00	0.69	0.00	2.22	2.22	0.00	0.72	1.63	0.78
tension	WS (%)	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63	0.00
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	2.08	0.72	0.00	2.84	1.48	0.74	0.00	0.72	0.00	0.00
MISC	WS (%)	1.25	0.22	1.46	0.43	0.67	2.00	1.74	1.96	1.22	1.16
MS medicine	WS (%)	4.17	4.35	8.33	2.13	0.00	0.00	2.17	0.00	2.44	2.33
decision making	WS (%)	0.69	0.72	0.00	0.71	0.00	1.48	1.45	0.72	0.81	0.78
concentration	WS (%)	1.39	2.17	3.47	0.71	2.96	6.67	2.90	3.62	3.25	2.33
memory	WS (%)	2.78	1.45	1.39	0.00	1.48	2.22	0.00	2.17	0.81	0.78
simple tasks	WS (%)	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.72	0.00	0.78
balance	WS (%)	3.47	1.45	2.08	0.71	1.48	5.19	2.90	4.35	5.69	6.20
carrying / moving	WS (%)	0.00	0.72	0.00	0.71	0.74	1.48	1.45	2.17	2.44	2.33
hand coordination	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
vision	WS (%)	0.00	0.00	0.00	0.00	0.00	2.96	0.72	1.45	0.00	0.00
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00
more mistakes	(%)	0.00	0.00	2.08	0.00	0.00	2.22	0.00	0.00	0.00	0.00
longer time	(%)	2.08	0.00	2.08	2.13	0.00	2.22	2.17	2.17	4.88	6.98
not finished	(%)	0.00	0.00	0.00	0.00	0.00	2.22	0.00	2.17	0.00	0.00
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	0.00	0.00
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	0.00	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00	0.00	0.00
cold / flu	WS (%)	12.50	10.14	9.72	12.06	8.89	7.41	8.70	10.87	8.13	9.30
air quality	WS (%)	8.33	8.70	6.25	7.80	6.67	5.93	5.80	5.80	7.32	7.75
noise	WS (%)	9.72	7.25	6.94	4.96	6.67	6.67	6.52	5.80	7.32	5.43
vibration	WS (%)	9.03	3.62	4.86	2.84	6.67	6.67	6.52	6.52	9.76	6.98
too bright	WS (%)	1.39	2.17	1.39	2.84	5.19	2.22	2.90	2.90	4.07	3.88
too dark	WS (%)	2.78	1.45	1.39	1.42	0.74	0.00	1.45	2.17	1.63	0.00
too hot	WS (%)	2.08	1.45	2.08	0.71	1.48	1.48	0.72	0.00	1.63	2.33
too cold	WS (%)	2.78	5.07	2.08	4.26	3.70	3.70	2.90	4.35	3.25	2.33
other (other)	WS (%)	0.69	0.00	0.00	1.42	0.00	0.00	0 00	1.45	3.25	1.55

Table A.1.2: Weighted Severity, Ship A, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	11.11	11.85	14.81	23.02	20.33	19.30	21.21	14.53	8.08	14.37
sleep time	WS (%)	17.04	17.04	34.81	26.19	24.39	29.82	33.33	21.37	20.20	21.28
sleep motions	WS (%)	11.11	11.11	6.67	15.87	6.50	7.02	7.58	12.82	14.14	10.19
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	1.75	0.00	2.56	0.00	0.23
sleep (other)	WS (%)	1.48	3.70	12.59	4.76	15.45	14.91	20.45	5.98	8.08	8.35
mental fatigue	WS (%)	5.19	4.44	6.67	8.73	7.32	7.89	7.58	5.13	8.08	5.55
physical fatigue	WS (%)	8.89	12.59	16.30	17.46	12.20	11.40	12.12	14.53	11.11	11.62
sleepy	WS (%)	9.63	11.85	23.70	19.05	13.01	18.42	18.18	17.09	14.14	14.17
headache	WS (%)	1.48	2.22	3.70	2.38	2.44	3.51	3.03	5.13	5.05	3.70
apathy	WS (%)	0.00	2.96	0.00	2.38	0.81	1.75	1.52	1.71	4.04	1.27
tension	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.17
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	1.48	0.00	0.00	0.00	0.00	0.00	0.00	5.13	2.02	0.91
MISC	WS (%)	0.22	0.89	0.67	1.19	0.00	0.79	0.23	0.77	0.00	0.89
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36
decision making	WS (%)	0.74	0.74	1.48	1.59	0.81	1.75	0.76	0.85	0.00	0.85
concentration	WS (%)	1.48	2.22	5.19	4.76	3.25	6.14	4.55	4.27	4.04	3.44
memory	WS (%)	0.74	2.22	0.74	3.17	1.63	2.63	0.76	1.71	0.00	1.40
simple tasks	WS (%)	0.74	0.00	0.00	0.79	1.63	0.88	0.00	0.00	0.00	0.33
balance	WS (%)	2.22	2.22	2.22	2.38	3.25	0.88	3.03	2.56	4.04	2.96
carrying / moving	WS (%)	1.48	1.48	1.48	1.59	2.44	0.88	1.52	1.71	2.02	1.40
hand coordination	WS (%)	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.04
vision	WS (%)	0.74	1.48	0.00	0.00	0.81	1.75	0.00	1.71	0.00	0.61
performance (other)	WS (%)	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
more mistakes	(%)	0.00	0.00	0.00	2.38	2.44	0.00	0.00	0.00	0.00	0.48
longer time	(%)	2.22	4.44	4.44	7.14	2.44	0.00	2.27	2.56	0.00	2.64
not finished	(%)	0.00	0.00	2.22	0.00	0.00	0.00	0.00	0.00	0.00	0.35
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
cold / flu	WS (%)	8.89	8.15	8.89	11.11	9.76	11.40	6.82	11.11	7.07	9.52
air quality	WS (%)	6.67	5.19	7.41	7.14	8.94	7.89	5.30	6.84	10.10	7.15
noise	WS (%)	4.44	6.67	8.89	7.94	8.13	8.77	8.33	6.84	5.05	6.96
vibration	WS (%)	6.67	8.15	5.93	7.94	8.13	7.89	6.06	9.40	9.09	6.98
too bright	WS (%)	2.22	2.22	2.96	2.38	4.07	4.39	3.03	4.27	4.04	3.08
too dark	WS (%)	0.74	0.00	3.70	0.00	1.63	0.00	2.27	0.00	0.00	1.12
too hot	WS (%)	2.22	1.48	1.48	2.38	2.44	2.63	1.52	1.71	2.02	1.68
too cold	WS (%)	0.00	0.74	0.74	1.59	2.44	2.63	0.76	2.56	5.05	2.68
other (other)	WS (%)	0.00	1.48	5.19	6.35	4.07	1.75	3.03	1.71	3.03	1.84

Ave.* = average over days 1.5 through 10.5

Table A.1.3: Weighted Severity, Ship A, any MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	4.17	21.67	5.13	21.67	24.44	27.78	22.22	16.67	20.00	19.30
sleep time	WS (%)	18.75	31.67	33.33	31.67	35.56	27.78	40.00	26.67	31.11	29.82
sleep motions	WS (%)	2.08	5.00	0.00	13.33	15.56	12.96	11.11	21.67	24.44	29.82
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	1.85	0.00	1.67	0.00	0.00
sleep (other)	WS (%)	8.33	10.00	7.69	6.67	8.89	16.67	13.33	3.33	0.00	0.00
mental fatigue	WS (%)	4.17	6.67	7.69	8.33	8.89	14.81	20.00	10.00	22.22	14.04
physical fatigue	WS (%)	10.42	15.00	10.26	18.33	17.78	16.67	33.33	13.33	22.22	19.30
sleepy	WS (%)	18.75	21.67	15.38	21.67	22.22	20.37	33.33	11.67	17.78	22.81
headache	WS (%)	6.25	8.33	12.82	13.33	8.89	11.11	11.11	10.00	11.11	10.53
apathy	WS (%)	0.00	5.00	0.00	1.67	0.00	1.85	4.44	5.00	0.00	3.51
tension	WS (%)	0.00	3.33	0.00	0.00	2.22	0.00	2.22	5.00	2.22	1.75
vomit	WS (%)	0.00	1.67	0.00	0.00	0.00	0.00	0.00	3.33	0.00	0.00
nausea	WS (%)	4.17	0.00	2.56	0.00	0.00	1.85	4.44	3.33	2.22	1.75
stomach awareness	WS (%)	8.33	6.67	7.69	11.67	6.67	7.41	15.56	8.33	11.11	10.53
symptom (other)	WS (%)	0.00	0.00	2.56	8.33	0.00	5.56	0.00	0.00	0.00	0.00
MISC	WS (%)	8.75	4.50	4.62	3.50	6.67	3.89	10.67	6.00	8.00	4.21
MS medicine	WS (%)	0.00	0.00	0.00	5.00	0.00	5.56	6.67	5.00	20.00	5.26
decision making	WS (%)	0.00	1.67	0.00	0.00	4.44	5.56	6.67	8.33	2.22	3.51
concentration	WS (%)	4.17	8.33	5.13	10.00	11.11	16.67	17.78	13.33	11.11	8.77
memory	WS (%)	0.00	5.00	2.56	0.00	4.44	7.41	8.89	8.33	11.11	3.51
simple tasks	WS (%)	0.00	1.67	0.00	0.00	4.44	3.70	8.89	6.67	4.44	3.51
balance	WS (%)	4.17	6.67	2.56	3.33	4.44	1.85	11.11	10.00	13.33	12.28
carrying / moving	WS (%)	2.08	5.00	2.56	1.67	6.67	3.70	11.11	3.33	13.33	10.53
hand coordination	WS (%)	0.00	3.33	2.56	1.67	4.44	0.00	4.44	6.67	0.00	1.75
vision	WS (%)	2.08	6.67	2.56	1.67	4.44	1.85	2.22	1.67	0.00	3.51
performance (other)	WS (%)	0.00	0.00	0.00	1.67	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	0.00	5.00	0.00	5.00	6.67	5.56	6.67	0.00	0.00	0.00
longer time	(%)	6.25	15.00	7.69	5.00	6.67	11.11	13.33	5.00	13.33	5.26
not finished	(%)	6.25	0.00	0.00	5.00	0.00	5.56	0.00	0.00	0.00	0.00
abandoned	(%)	6.25	5.00	0.00	5.00	0.00	0.00	0.00	5.00	0.00	5.26
not attempt	(%)	6.25	0 00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
completion (other)	(%)	6.25	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00
cold / flu	WS (%)	0.00	8.33	0.00	5.00	6.67	7.41	6.67	5.00	8.89	8.77
air quality	WS (%)	4.17	6.67	0.00	11.67	6.67	11.11	6.67	10.00	6.67	8.77
noise	WS (%)	16.67	15.00	17.95	13 33	17.78	27.78	26.67	21.67	22.22	22.81
vibration	WS (%)	14.58	10.00	12.82	11.67	8.89	25.93	20.00	23.33	22.22	26.32
too bright	WS (%)	0.00	1.67	0.00	1.67	2.22	7.41	2.22	1.67	2.22	1.75
too dark	WS (%)	0.00	3.33	0.00	0.00	4.44	0.00	0.00	5.00	4.44	0.00
too hot	WS (%)	0.00	1.67	0.00	3.33	4.44	7.41	4.44	3.33	4.44	5.26
too cold	WS (%)	0.00	10.00	2.56	3.33	4.44	1.85	2.22	5.00	4.44	1.75
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	1.85	0.00	0.00	0.00	0.00

Table A.1.3: Weighted Severity, Ship A, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	2.38	19.30	23.08	36.51	33.33	29.41	17.95	38.89	0.00	20.20
sleep time	WS (%)	16.67	29.82	28.21	50.79	45.24	33.33	20.51	53.70	33.33	32.52
sleep motions	WS (%)	0.00	10.53	7.69	34.92	16.67	23.53	0.00	33.33	0.00	13.82
sleep MS	WS (%)	4.76	0.00	0.00	0.00	0.00	1.96	0.00	0.00	0.00	0.54
sleep (other)	WS (%)	4.76	1.75	12.82	9.52	35.71	3.92	2.56	7.41	0.00	8.07
mental fatigue	WS (%)	14.29	12.28	23.08	17.46	16.67	17.65	10.26	31.48	8.33	14.12
physical fatigue	WS (%)	16.67	17.54	28.21	30.16	35.71	33.33	20.51	46.30	33.33	23.07
sleepy	WS (%)	14.29	10.53	25.64	30.16	38.10	27.45	23.08	35.19	16.67	22.46
headache	WS (%)	2.38	7.02	10.26	7.94	14.29	7.84	7.69	7.41	8.33	9.30
apathy	WS (%)	4.76	1.75	2.56	3.17	7.14	3.92	0.00	5.56	0.00	2.65
tension	WS (%)	7.14	0.00	2.56	0.00	2.38	1.96	0.00	1.85	0.00	1.72
vomit	WS (%)	7.14	0.00	0.00	0.00	0.00	1.96	0.00	1.85	0.00	0.84
nausea	WS (%)	2.38	0.00	0.00	0.00	2.38	1.96	0.00	1.85	0.00	1.52
stomach awareness	WS (%)	2.38	3.51	12.82	1.59	2.38	3.92	0.00	3.70	8.33	6.98
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	1.96	0.00	1.85	0.00	1.07
MISC	WS (%)	2.14	3.16	6.15	2.38	5.00	2.35	2.31	2.78	5.00	4.85
MS medicine	WS (%)	0.00	0.00	7.69	0.00	0.00	5.88	0.00	0.00	0.00	3.21
decision making	WS (%)	9.52	1.75	5.13	9.52	9.52	5.88	2.56	3.70	0.00	4.21
concentration	WS (%)	11.90	10.53	12.82	14.29	14.29	7.84	5.13	9.26	0.00	10.13
memory	WS (%)	9.52	7.02	2.56	9.52	9.52	5.88	2.56	1.85	0.00	5.25
simple tasks	WS (%)	7.14	5.26	5.13	6.35	9.52	3.92	2.56	1.85	0.00	3.95
balance	WS (%)	7.14	5.26	2.56	11.11	7.14	3.92	0.00	14.81	0.00	6.41
carrying / moving	WS (%)	7.14	5.26	7.69	14.29	4.76	3.92	0.00	7.41	0.00	5.81
hand coordination	WS (%)	7.14	0.00	2.56	4.76	2.38	1.96	0.00	7.41	0.00	2.69
vision	WS (%)	7.14	3.51	2.56	3.17	2.38	1.96	0.00	9.26	0.00	2.98
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
more mistakes	(%)	0.00	0.00	7.69	4.76	7.14	5.88	0.00	0.00	0.00	2.86
longer time	(%)	0.00	0.00	7.69	4.76	7.14	5.88	0.00	0.00	0.00	6.01
not finished	(%)	0.00	0.00	0.00	0.00	7.14	0.00	0.00	0.00	0.00	1.26
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
cold / flu	WS (%)	2.38	7.02	5.13	15.87	11.90	9.80	12.82	11.11	0.00	6.99
air quality	WS (%)	4.76	7.02	7.69	4.76	7.14	5.88	2.56	7.41	0.00	6.30
noise	WS (%)	14.29	19.30	20.51	22.22	21.43	25.49	15.38	24.07	25.00	20.50
vibration	WS (%)	14.29	19.30	20.51	22.22	19.05	25.49	15.38	25.93	25.00	19.10
too bright	WS (%)	2.38	1.75	5.13	3.17	4.76	1.96	2.56	1.85	0.00	2.34
too dark	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
too hot	WS (%)	4.76	5.26	5.13	4.76	4.76	1.96	2.56	3.70	8.33	3.98
too cold	WS (%)	0.00	3.51	5.13	0.00	2.38	0.00	0.00	1.85	0.00	2.55
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10

Ave.* = average over days 1.5 through 10.5

Table A.1.4: Weighted Severity, Ship A, low MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	3.33	21.21	8.33	27.27	4.17	27.27	20.83	25.00	9.52	21.21
sleep time	WS (%)	23.33	36.36	50.00	33.33	20.83	30.30	33.33	30.56	9.52	24.24
sleep motions	WS (%)	0.00	6.06	0.00	15.15	0.00	12.12	12.50	22.22	4.76	30.30
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	0.00	0.00
sleep (other)	WS (%)	13.33	18.18	12.50	9.09	8.33	24.24	8.33	5.56	0.00	0.00
mental fatigue	WS (%)	3.33	3.03	8.33	9.09	4.17	9.09	12.50	8.33	4.76	6.06
physical fatigue	WS (%)	10.00	9.09	12.50	27.27	8.33	15.15	25.00	11.11	4.76	12.12
sleepy	WS (%)	26.67	15.15	20.83	27.27	12.50	15.15	20.83	13.89	9.52	12.12
headache	WS (%)	10.00	9.09	20.83	15.15	4.17	9.09	8.33	11.11	4.76	6.06
apathy	WS (%)	0.00	6.06	0.00	3.03	0.00	3.03	4.17	8.33	0.00	3.03
tension	WS (%)	0.00	3.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	3.03	4.17	0.00	0.00	0.00
stomach awareness	WS (%)	3.33	6.06	4.17	3.03	0.00	3.03	8.33	2.78	9.52	6.06
symptom (other)	WS (%)	0.00	0.00	4.17	0.00	0.00	9.09	0.00	0.00	0.00	0.00
MISC	WS (%)	5.00	3.64	3.75	3.64	3.75	3.64	10.00	3.33	7.14	2.73
MS medicine	WS (%)	0.00	0.00	0.00	9.09	0.00	0.00	0.00	8.33	14.29	0.00
decision making	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	4.17	2.78	0.00	0.00
concentration	WS (%)	3.33	3.03	0.00	3.03	4.17	6.06	12.50	5.56	4.76	6.06
memory	WS (%)	0.00	3.03	0.00	0.00	0.00	3.03	4.17	2.78	4.76	3.03
simple tasks	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	8.33	2.78	4.76	3.03
balance	WS (%)	3.33	0.00	0.00	0.00	0.00	0.00	4.17	5.56	4.76	6.06
carrying / moving	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	4.17	2.78	9.52	3.03
hand coordination	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
vision	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	0.00	0.00	0.00	9.09	0.00	0.00	0.00	0.00	0.00	0.00
longer time	(%)	0.00	0.00	0.00	9.09	0.00	0.00	12.50	8.33	14.29	9.09
not finished	(%)	10.00	0.00	0.00	9.09	0.00	0.00	0.00	0.00	0.00	0.00
abandoned	(%)	10.00	9.09	0.00	9.09	0.00	0.00	0.00	0.00	0.00	0.00
not attempt	(%)	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	0.00	3.03	0.00	9.09	4.17	9.09	4.17	8.33	0.00	3.03
air quality	WS (%)	3.33	6.06	0.00	21.21	4.17	18.18	4.17	13.89	9.52	9.09
noise	WS (%)	13.33	12.12	12.50	15.15	16.67	36.36	16.67	19.44	9.52	24.24
vibration	WS (%)	13.33	6.06	8.33	15.15	8.33	27.27	16.67	22.22	14.29	33.33
too bright	WS (%)	0.00	0.00	0.00	3.03	4.17	3.03	4.17	2.78	4.76	3.03
too dark	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
too hot	WS (%)	0.00	0.00	0.00	0.00	4.17	3.03	4.17	2.78	4.76	6.06
too cold	WS (%)	0.00	3.03	4.17	3.03	0.00	3.03	0.00	0.00	0.00	0.00
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	3.03	0.00	0.00	0.00	0.00

Table A.1.4: Weighted Severity, Ship A, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	4.17	21.21	16.67	42.42	23.81	40.00	12.50	33.33	0.00	19.07
sleep time	WS (%)	16.67	30.30	27.78	51.52	38.10	40.00	16.67	44.44	33.33	31.09
sleep motions	WS (%)	0.00	12.12	0.00	45.45	14.29	26.67	0.00	25.93	0.00	11.98
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
sleep (other)	WS (%)	0.00	0.00	5.56	9.09	47.62	0.00	4.17	7.41	0.00	9.13
mental fatigue	WS (%)	4.17	0.00	11.11	9.09	0.00	13.33	0.00	14.81	0.00	6.38
physical fatigue	WS (%)	4.17	3.03	16.67	30.30	38.10	33.33	20.83	37.04	33.33	18.53
sleepy	WS (%)	8.33	9.09	16.67	33.33	33.33	33.33	20.83	22.22	33.33	20.23
headache	WS (%)	0.00	6.06	0.00	12.12	19.05	3.33	8.33	3.70	0.00	7.96
apathy	WS (%)	8.33	3.03	0.00	3.03	9.52	3.33	0.00	3.70	0.00	3.08
tension	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
stomach awareness	WS (%)	0.00	0.00	11.11	0.00	0.00	0.00	0.00	0.00	0.00	3.02
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
MISC	WS (%)	1.25	1.82	6.67	2.73	7.14	2.00	2.50	2.22	5.00	4.10
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67
decision making	WS (%)	0.00	3.03	0.00	0.00	0.00	6.67	0.00	0.00	0.00	0.88
concentration	WS (%)	4.17	6.06	11.11	12.12	9.52	10.00	4.17	11.11	0.00	6.15
memory	WS (%)	4.17	6.06	0.00	3.03	4.76	6.67	4.17	0.00	0.00	2.61
simple tasks	WS (%)	0.00	6.06	0.00	3.03	4.76	3.33	4.17	0.00	0.00	2.12
balance	WS (%)	0.00	0.00	0.00	0.00	0.00	6.67	0.00	3.70	0.00	1.80
carrying / moving	WS (%)	0.00	0.00	0.00	3.03	0.00	3.33	0.00	0.00	0.00	1.36
hand coordination	WS (%)	0.00	0.00	0.00	0.00	0.00	3.33	0.00	7.41	0.00	0.57
vision	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	1.00
longer time	(%)	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00	3.33
not finished	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	0.00	3.03	5.56	12.12	19.05	10.00	20.83	7.41	0.00	6.26
air quality	WS (%)	4.17	12.12	5.56	9.09	9.52	6.67	4.17	11.11	0.00	8.00
noise	WS (%)	8.33	24.24	16.67	33.33	19.05	30.00	12.50	29.63	0.00	18.41
vibration	WS (%)	8.33	24.24	22.22	33.33	19.05	30.00	12.50	33.33	0.00	18.32
too bright	WS (%)	4.17	3.03	5.56	3.03	4.76	3.33	4.17	3.70	0.00	2.98
too dark	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
too hot	WS (%)	4.17	6.06	5.56	3.03	4.76	3.33	4.17	3.70	0.00	3.14
too cold	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16

Ave.* = average over days 1.5 through 10.5

Table A.1.5: Weighted Severity, Ship A, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	5.56	22.22	0.00	14.81	47.62	28.57	23.81	4.17	29.17	16.67
sleep time	WS (%)	11.11	25.93	6.67	29.63	52.38	23.81	47.62	20.83	50.00	37.50
sleep motions	WS (%)	5.56	3.70	0.00	11.11	33.33	14.29	9.52	20.83	41.67	29.17
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	4.76	0.00	0.00	0.00	0.00
sleep (other)	WS (%)	0.00	0.00	0.00	3.70	9.52	4.76	19.05	0.00	0.00	0.00
mental fatigue	WS (%)	5.56	11.11	6.67	7.41	14.29	23.81	28.57	12.50	37.50	25.00
physical fatigue	WS (%)	11.11	22.22	6.67	7.41	28.57	19.05	42.86	16.67	37.50	29.17
sleepy	WS (%)	5.56	29.63	6.67	14.81	33.33	28.57	47.62	8.33	25.00	37.50
headache	WS (%)	0.00	7.41	0.00	11.11	14.29	14.29	14.29	8.33	16.67	16.67
apathy	WS (%)	0.00	3.70	0.00	0.00	0.00	0.00	4.76	0.00	0.00	4.17
tension	WS (%)	0.00	3.70	0.00	0.00	4.76	0.00	4.76	12.50	4.17	4.17
vomit	WS (%)	0.00	3.70	0.00	0.00	0.00	0.00	0.00	8.33	0.00	0.00
nausea	WS (%)	11.11	0.00	6.67	0.00	0.00	0.00	4.76	8.33	4.17	4.17
stomach awareness	WS (%)	16.67	7.41	13.33	22.22	14.29	14.29	23.81	16.67	12.50	16.67
symptom (other)	WS (%)	0.00	0.00	0.00	18.52	0.00	0.00	0.00	0.00	0.00	0.00
MISC	WS (%)	15.00	5.56	6.00	3.33	10.00	4.29	11.43	10.00	8.75	6.25
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	14.29	14.29	0.00	25.00	12.50
decision making	WS (%)	0.00	3 70	0.00	0.00	9.52	14.29	9.52	16.67	4.17	8.33
concentration	WS (%)	5.56	14.81	13.33	18.52	19.05	33.33	23.81	25.00	16.67	12.50
memory	WS (%)	0.00	7.41	6.67	0.00	9.52	14.29	14.29	16 67	16.67	4.17
simple tasks	WS (%)	0.00	3.70	0.00	0.00	9.52	9.52	9.52	12.50	4.17	4.17
balance	WS (%)	5.56	14.81	6.67	7.41	9.52	4.76	19.05	16.67	20.83	20.83
carrying / moving	WS (%)	5.56	11.11	6.67	3.70	14.29	9.52	19.05	4.17	16.67	20.83
hand coordination	WS (%)	0.00	7.41	6.67	3.70	9.52	0.00	9.52	16.67	0.00	4.17
vision	WS (%)	5.56	14.81	6.67	3.70	9.52	4.76	4.76	4.17	0.00	8.33
performance (other)	WS (%)	0.00	0.00	0.00	3.70	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	0.00	11.11	0.00	0.00	14.29	14.29	14.29	0.00	0.00	0.00
longer time	(%)	16.67	33.33	20.00	0.00	14.29	28.57	14.29	0.00	12.50	0.00
not finished	(%)	0.00	0.00	0.00	0.00	0.00	14.29	0.00	0.00	0.00	0.00
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.50	0.00	12.50
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
completion (other)	(%)	16.67	0.00	0.00	0.00	0.00	0.00	0.00	25.00	0.00	0.00
cold / flu	WS (%)	0.00	14.81	0.00	0.00	9.52	4.76	9.52	0.00	16.67	16.67
air quality	WS (%)	5.56	7.41	0.00	0.00	9.52	0.00	9.52	4.17	4.17	8.33
noise	WS (%)	22.22	18.52	26.67	11.11	19.05	14.29	38.10	25.00	33.33	20.83
vibration	WS (%)	16.67	14.81	20.00	7.41	9.52	23.81	23.81	25.00	29.17	16.67
too bright	WS (%)	0.00	3.70	0.00	0.00	0.00	14.29	0.00	0.00	0.00	0.00
too dark	WS (%)	0.00	7.41	0.00	0.00	9.52	0.00	0.00	12.50	8.33	0.00
too hot	WS (%)	0.00	3.70	0.00	7.41	4.76	14.29	4.76	4.17	4.17	4.17
too cold	WS (%)	0.00	18.52	0.00	3.70	9.52	0.00	4.76	12.50	8.33	4.17
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table A.1.5: Weighted Severity, Ship A, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	0.00	16.67	28.57	30.00	42.86	14.29	26.67	44.44	0.00	20.85
sleep time	WS (%)	16.67	29.17	28.57	50.00	52.38	23.81	26.67	62.96	33.33	33.11
sleep motions	WS (%)	0.00	8.33	14.29	23.33	19.05	19.05	0.00	40.74	0.00	15.47
sleep MS	WS (%)	11.11	0.00	0.00	0.00	0.00	4.76	0.00	0.00	0.00	1.09
sleep (other)	WS (%)	11.11	4.17	19.05	10.00	23.81	9.52	0.00	7.41	0.00	6.43
mental fatigue	WS (%)	27.78	29.17	33.33	26.67	33.33	23.81	26.67	48.15	16.67	23.05
physical fatigue	WS (%)	33.33	37.50	38.10	30.00	33.33	33.33	20.00	55.56	33.33	28.19
sleepy	WS (%)	22.22	12.50	33.33	26.67	42.86	19.05	26.67	48.15	0.00	24.66
headache	WS (%)	5.56	8.33	19.05	3.33	9.52	14.29	6.67	11.11	16.67	10.40
apathy	WS (%)	0.00	0.00	4.76	3.33	4.76	4.76	0.00	7.41	0.00	1.98
tension	WS (%)	16.67	0.00	4.76	0.00	4.76	4.76	0.00	3.70	0.00	3.62
vomit	WS (%)	16.67	0.00	0.00	0.00	0.00	4.76	0.00	3.70	0.00	1.96
nausea	WS (%)	5.56	0.00	0.00	0.00	4.76	4.76	0.00	3.70	0.00	3.05
stomach awareness	WS (%)	5.56	8.33	14.29	3.33	4.76	9.52	0.00	7.41	16.67	11.98
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	4.76	0.00	3.70	0.00	1.42
MISC	WS (%)	3.33	5.00	5.71	2.00	2.86	2.86	2.00	3.33	5.00	5.93
MS medicine	WS (%)	0.00	0.00	14.29	0.00	0.00	14.29	0.00	0.00	0.00	4.98
decision making	WS (%)	22.22	0.00	9.52	20.00	19.05	4.76	6.67	7.41	0.00	8.20
concentration	WS (%)	22.22	16.67	14.29	16.67	19.05	4.76	6.67	7.41	0.00	15.28
memory	WS (%)	16.67	8.33	4.76	16.67	14.29	4.76	0.00	3.70	0.00	8.36
simple tasks	WS (%)	16.67	4.17	9.52	10.00	14.29	4.76	0.00	3.70	0.00	6.12
balance	WS (%)	16.67	12.50	4.76	23.33	14.29	0.00	0.00	25.93	0.00	11.77
carrying / moving	WS (%)	16.67	12.50	14.29	26.67	9.52	4.76	0.00	14.81	0.00	11.09
hand coordination	WS (%)	16.67	0.00	4.76	10.00	4.76	0.00	0.00	7.41	0.00	5.33
vision	WS (%)	16.67	8.33	4.76	6.67	4.76	4.76	0.00	18.52	0.00	6.67
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19
more mistakes	(%)	0.00	0.00	14.29	10.00	14.29	0.00	0.00	0.00	0.00	4.87
longer time	(%)	0.00	0.00	14.29	10.00	14.29	0.00	0.00	0.00	0.00	9.38
not finished	(%)	0.00	0.00	0.00	0.00	14.29	0.00	0.00	0.00	0.00	1.50
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19
cold / flu	WS (%)	5.56	12.50	4.76	20.00	4.76	9.52	0.00	14.81	0.00	7.57
air quality	WS (%)	5.56	0.00	9.52	0.00	4.76	4.76	0.00	3.70	0.00	4.05
noise	WS (%)	22.22	12.50	23.81	10.00	23.81	19.05	20.00	18.52	50.00	22.58
vibration	WS (%)	22.22	12.50	19.05	10.00	19.05	19.05	20.00	18.52	50.00	19.86
too bright	WS (%)	0.00	0.00	4.76	3.33	4.76	0.00	0.00	0.00	0.00	1.62
too dark	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99
too hot	WS (%)	5.56	4.17	4.76	6.67	4.76	0.00	0.00	3.70	16.67	4.93
too cold	WS (%)	0.00	8.33	9.52	0.00	4.76	0.00	0.00	3.70	0.00	4.62
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Ave.* = average over days 1.5 through 10.5

Table B.1.1: Weighted Severity, Ship B, all subjects, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	32.14	36.11	20.43	45.10	21.88	35.48	29.76	49.02	35.80	34.29
sleep time	WS (%)	42.86	42.59	20.43	45.10	26.04	27.96	23.81	46.08	35.80	27.62
sleep motions	WS (%)	15.48	24.07	11.83	26.47	19.79	39.78	40.48	56.86	40.74	34.29
sleep MS	WS (%)	2.38	6.48	8.60	10.78	3.13	8.60	11.90	9.80	6.17	3.81
sleep (other)	WS (%)	25.00	18.52	9.68	20.59	11.46	5.38	3.57	10.78	7.41	14.29
mental fatigue	WS (%)	26.19	24.07	18.28	26.47	25.00	25.81	29.76	29.41	29.63	20.95
physical fatigue	WS (%)	28.57	30.56	20.43	31.37	27.08	34.41	30.95	32.35	32.10	21.90
sleepy	WS (%)	40.48	44.44	29.03	46.08	31.25	35.48	35.71	42.16	37.04	33.33
headache	WS (%)	17.86	18.52	10.75	20.59	13.54	20.43	17.86	26.47	16.05	17.14
apathy	WS (%)	17.86	21.30	9.68	19.61	17.71	24.73	22.62	24.51	23.46	7.62
tension	WS (%)	19.05	24.07	15.05	18.63	14.58	24.73	26.19	18.63	18.52	15.24
vomit	WS (%)	4.76	0.93	3.23	2.94	0.00	3.23	3.57	2.94	2.47	1.90
nausea	WS (%)	10.71	14.81	6.45	6.86	15.63	19.35	19.05	15.69	9.88	6.67
stomach awareness	WS (%)	7.14	15.74	8.60	10.78	15.63	16.13	22.62	18.63	16.05	10.48
symptom (other)	WS (%)	4.76	5.56	2.15	0.00	2.08	0.00	1.19	4.90	2.47	0.00
MISC	WS (%)	14.64	18.89	10.32	10.59	20.31	21.61	25.36	19.12	23.33	19.14
MS medicine	WS (%)	10.71	25.00	9.68	5.88	18.75	16.13	17.86	23.53	18.52	17.14
decision making	WS (%)	16.67	19.44	10.75	17.65	9.38	20.43	21.43	17.65	19.75	11.43
concentration	WS (%)	28.57	26.85	15.05	23.53	16.67	24.73	28.57	27.45	24.69	17.14
memory	WS (%)	16.67	17.59	17.20	14.71	7.29	20.43	15.48	14.71	13.58	7.62
simple tasks	WS (%)	10.71	12.96	6.45	11.76	7.29	17.20	14.29	17.65	12.35	8.57
balance	WS (%)	19.05	24.07	15.05	18.63	22.92	29.03	38.10	33.33	28.40	20.00
carrying / moving	WS (%)	16.67	20.37	8.60	12.75	13.54	25.81	32.14	25.49	23.46	13.33
hand coordination	WS (%)	10.71	13.89	6.45	9.80	11.46	17.20	20.24	17.65	13.58	10.48
vision	WS (%)	11.90	13.89	4.30	13.73	10.42	19.35	13.10	20.59	9.88	9.52
performance (other)	WS (%)	4.76	6.48	3.23	1.96	0.00	2.15	0.00	1.96	0.00	0.00
more mistakes	(%)	17.86	11.11	6.45	20.59	3.13	9.68	17.86	14.71	11.11	14.29
longer time	(%)	28.57	27.78	9.68	20.59	12.50	29.03	39.29	20.59	14.81	14.29
not finished	(%)	14.29	11.11	6.45	8.82	3.13	16.13	25.00	11.76	14.81	8.57
abandoned	(%)	10.71	13.89	3.23	11.76	6.25	22.58	21.43	11.76	14.81	11.43
not attempt	(%)	14.29	5.56	0.00	0.00	3.13	9.68	17.86	8.82	11.11	8.57
completion (other)	(%)	3.57	2.78	3.23	0.00	3.13	0.00	7.14	0.00	0.00	0.00
cold / flu	WS (%)	22 62	19.44	16.13	12.75	22.92	17.20	16.67	14.71	11.11	11.43
air quality	WS (%)	16.67	7.41	8.60	8.82	10.42	11.83	13.10	9.80	14.81	11.43
noise	WS (%)	11.90	21.30	17.20	16.67	16.67	19.35	20.24	22.55	19.75	16.19
vibration	WS (%)	20.24	25.93	15.05	20.59	21.88	30.11	29.76	30.39	28.40	27.62
too bright	WS (%)	3.57	6.48	3.23	3.92	6.25	5.38	3.57	4.90	2.47	1.90
too dark	WS (%)	4.76	5.56	2.15	5.88	7.29	5.38	4.76	7.84	8.64	7.62
too hot	WS (%)	0.00	1.85	2.15	3.92	4.17	4.30	1.19	6.86	1.23	1.90
too cold	WS (%)	21.43	19.44	4.30	18.63	19.79	13.98	14.29	14.71	16.05	14.29
other (other)	WS (%)	2.38	0.93	0.00	0.98	1.04	3.23	4.76	0.98	0.00	2.86

Table B.1.1: Weighted Severity, Ship B, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	40.40	33.33	35.48	35.80	19.44	47.44	30.30	35.29	31.88	34.18
sleep time	WS (%)	32.32	30.00	30.11	32.10	20.83	41.03	27.27	35.29	36.23	32.81
sleep motions	WS (%)	51.52	37.50	34.41	48.15	30.56	55.13	30.30	45.10	36.23	35.72
sleep MS	WS (%)	7.07	7.50	6.45	7.41	5.56	8.97	4.55	1.96	1.45	6.45
sleep (other)	WS (%)	10.10	4.17	12.90	7.41	5.56	6.41	13.64	5.88	8.70	10.60
mental fatigue	WS (%)	23.23	18.33	24.73	23.46	20.83	25.64	19.70	19.61	14.49	23.45
physical fatigue	WS (%)	29.29	18.33	29.03	28.40	23.61	32.05	21.21	25.49	23.19	27.39
sleepy	WS (%)	33.33	30.83	31.18	35.80	27.78	43.59	31.82	39.22	28.99	35.66
headache	WS (%)	19.19	15.83	19.35	20.99	16.67	24.36	16.67	21.57	11.59	18.18
apathy	WS (%)	19.19	10.83	13.98	23.46	13.89	15.38	15.15	13.73	14.49	17.33
tension	WS (%)	17.17	12.50	18.28	18.52	16.67	17.95	13.64	21.57	11.59	18.03
vomit	WS (%)	2.02	2.50	6.45	4.94	0.00	2.56	0.00	5.88	1.45	2.72
nausea	WS (%)	21.21	10.83	11.83	16.05	13.89	11.54	10.61	7.84	7.25	12.43
stomach awareness	WS (%)	18.18	13.33	15.05	17.28	16.67	11.54	10.61	9.80	5.80	13.69
symptom (other)	WS (%)	1.01	0.00	2.15	7.41	0.00	2.56	9.09	1.96	0.00	2.49
MISC	WS (%)	25.45	17.75	23.55	18.15	23.75	20.77	20.00	17.06	10.87	18.98
MS medicine	WS (%)	21.21	15.00	16.13	22.22	16.67	15.38	18.18	17.65	8.70	16.54
decision making	WS (%)	11.11	8.33	15.05	18.52	12.50	11.54	9.09	13.73	10.14	14.45
concentration	WS (%)	18.18	13.33	20.43	24.69	12.50	16.67	9.09	21.57	11.59	20.07
memory	WS (%)	8.08	6.67	9.68	12.35	9.72	10.26	7.58	7.84	4.35	11.67
simple tasks	WS (%)	9.09	5.83	9.68	12.35	9.72	10.26	10.61	11.76	5.80	10.75
balance	WS (%)	30.30	24.17	24.73	34.57	22.22	34.62	16.67	37.25	14.49	25.66
carrying / moving	WS (%)	26.26	20.00	20.43	29.63	19.44	26.92	15.15	35.29	13.04	20.96
hand coordination	WS (%)	17.17	10.00	12.90	13.58	6.94	12.82	12.12	15.69	5.80	12.55
vision	WS (%)	15.15	7.50	12.90	17.28	5.56	14.10	7.58	11.76	5.80	11.81
performance (other)	WS (%)	0.00	0.00	0.00	2.47	0.00	0.00	0.00	0.00	0.00	1.21
more mistakes	(%)	18.18	5.00	9.68	18.52	4.17	15.38	9.09	5.88	13.04	11.88
longer time	(%)	24.24	7.50	19.35	22.22	16.67	23.08	9.09	23.53	21.74	20.24
not finished	(%)	9.09	5.00	12.90	11.11	4.17	7.69	4.55	11.76	4.35	10.04
abandoned	(%)	9.09	5.00	9.68	11.11	8.33	7.69	9.09	5.88	4.35	10.43
not attempt	(%)	6.06	2.50	12.90	7.41	8.33	7.69	4.55	11.76	8.70	7.84
completion (other)	(%)	0.00	0.00	6.45	0.00	0.00	0.00	0.00	0.00	0.00	1.38
cold / flu	WS (%)	10.10	8.33	22.58	19.75	15.28	17.95	16.67	13.73	13.04	15.92
air quality	WS (%)	7.07	5.83	18.28	9.88	8.33	12.82	10.61	11.76	5.80	10.70
noise	WS (%)	22.22	15.83	25.81	19.75	16.67	19.23	13.64	19.61	11.59	18.22
vibration	WS (%)	30.30	23.33	29.03	29.63	22.22	26.92	22.73	19.61	23.19	25.10
too bright	WS (%)	4.04	3.33	5.38	3.70	2.78	7.69	0.00	7.84	1.45	4.10
too dark	WS (%)	6.06	5.00	7.53	14.81	0.00	6.41	4.55	5.88	4.35	6.02
too hot	WS (%)	6.06	2.50	5.38	7.41	1.39	2.56	3.03	7.84	5.80	3.66
too cold	WS (%)	13.13	10.00	12.90	14.81	6.94	17.95	13.64	19.61	13.04	14.68
other (other)	WS (%)	2.02	0.00	1.08	0.00	2.78	3.85	0.00	0.00	0.00	1.41

Ave.* = average over days 1.5 through 10.5

Table B.1.2: Weighted Severity, Ship B, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	30.77	28.89	9.52	31.11	7.14	22.22	6.67	35.71	18.52	28.89
sleep time	WS (%)	56.41	44.44	11.90	35.56	16.67	16.67	6.67	40.48	14.81	26.67
sleep motions	WS (%)	5.13	4.44	0.00	11.11	4.76	16.67	10.00	35.71	11.11	26 67
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sleep (other)	WS (%)	38.46	26.67	7.14	17.78	4.76	8.33	0.00	7.14	11.11	11.11
mental fatigue	WS (%)	25.64	17.78	9.52	13.33	14.29	8.33	10.00	26.19	14.81	13.33
physical fatigue	WS (%)	25.64	26.67	9.52	17.78	14.29	16.67	10.00	28.57	14.81	15.56
sleepy	WS (%)	48.72	46.67	28.57	37.78	16.67	13.89	13.33	30.95	22.22	26.67
headache	WS (%)	5.13	4.44	4.76	4.44	0.00	0.00	0.00	4.76	0.00	6.67
apathy	WS (%)	17.95	15.56	0.00	15.56	7.14	16.67	10.00	19.05	3.70	0.00
tension	WS (%)	12.82	0.00	0.00	4.44	0.00	0.00	3.33	2.38	0.00	0.00
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISC	WS (%)	5.38	0.00	0.00	0.00	2.14	0.00	0.00	0.00	0.00	4.00
MS medicine	WS (%)	0.00	0.00	0.00	0.00	7.14	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	15.38	11.11	2.38	11.11	7.14	8.33	3.33	11.90	7.41	4.44
concentration	WS (%)	25.64	11.11	7.14	13.33	9.52	8.33	10.00	11.90	7.41	8.89
memory	WS (%)	5.13	4.44	4.76	2.22	2.38	5.56	0.00	4.76	0.00	0.00
simple tasks	WS (%)	2.56	0.00	2.38	4.44	0.00	5.56	0.00	7.14	0.00	0.00
balance	WS (%)	7.69	4.44	0.00	4.44	4.76	5.56	3.33	14.29	0.00	0.00
carrying / moving	WS (%)	10.26	2.22	0.00	2.22	0.00	11.11	0.00	11.90	0.00	0.00
hand coordination	WS (%)	7.69	2.22	0.00	4.44	0.00	5.56	0.00	7.14	0.00	0.00
vision	WS (%)	2.56	2.22	0.00	2.22	2.38	5.56	0.00	2.38	0.00	0.00
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	23.08	6.67	7.14	20.00	0.00	0.00	0.00	7.14	0.00	0.00
longer time	(%)	23.08	6.67	0.00	6.67	0.00	8.33	10.00	7.14	0.00	0.00
not finished	(%)	15.38	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
abandoned	(%)	7.69	6.67	0.00	13.33	0.00	0.00	0.00	7.14	0.00	6.67
not attempt	(%)	15.38	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	17.95	17.78	11.90	8.89	9.52	8.33	6.67	7.14	0.00	8.89
air quality	WS (%)	7.69	0.00	2.38	0.00	2.38	0.00	0.00	0.00	0.00	0.00
noise	WS (%)	2.56	2.22	9.52	2.22	4.76	2.78	3.33	9.52	0.00	6.67
vibration	WS (%)	12.82	8.89	7.14	8.89	11.90	13.89	3.33	2.38	11.11	20.00
too bright	WS (%)	0.00	0.00	0.00	4.44	2.38	0.00	3.33	7.14	3.70	2.22
too dark	WS (%)	7.69	6.67	0.00	6.67	7.14	11.11	3.33	0.00	11.11	13.33
too hot	WS (%)	0.00	0.00	0.00	2.22	2.38	2.78	3.33	2.38	3.70	4.44
too cold	WS (%)	25.64	13.33	2.38	13.33	14.29	11.11	3.33	7.14	14.81	17.78
other (other)	WS (%)	5.13	0.00	0.00	2.22	2.38	2.78	3.33	2.38	0.00	0.00

Table B.1.2: Weighted Severity, Ship B, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	20.00	22.92	16.67	16.67	7.41	33.33	18.52	28.57	11.11	20.77
sleep time	WS (%)	10.00	12.50	13.33	10.00	7.41	23.33	11.11	33.33	13.89	21.33
sleep motions	WS (%)	20.00	18.75	10.00	20.00	14.81	36.67	18.52	33.33	19.44	16.69
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sleep (other)	WS (%)	3.33	2.08	0.00	10.00	0.00	6.67	7.41	0.00	5.56	8.82
mental fatigue	WS (%)	10.00	2.08	3.33	3.33	3.70	6.67	3.70	9.52	5.56	10.59
physical fatigue	WS (%)	10.00	2.08	3.33	6.67	7.41	10.00	3.70	14.29	8.33	12.91
sleepy	WS (%)	6.67	2.08	3.33	6.67	7.41	16.67	11.11	9.52	13.89	19.10
headache	WS (%)	0.00	0.00	3.33	3.33	0.00	3.33	3.70	9.52	0.00	2.81
apathy	WS (%)	6.67	0.00	0.00	3.33	0.00	6.67	0.00	0.00	0.00	6.44
tension	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.00	1.71
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MISC	WS (%)	2.00	0.63	2.00	3.00	3.33	3.00	0.00	4.29	0.00	1.57
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38
decision making	WS (%)	6.67	2.08	0.00	3.33	0.00	0.00	0.00	0.00	0.00	4.98
concentration	WS (%)	6.67	2.08	0.00	10.00	0.00	3.33	0.00	9.52	0.00	7.63
memory	WS (%)	3.33	2.08	0.00	3.33	0.00	0.00	0.00	0.00	0.00	2.00
simple tasks	WS (%)	3.33	0.00	0.00	0.00	0.00	0.00	0.00	9.52	0.00	1.84
balance	WS (%)	6.67	4.17	0.00	16.67	0.00	6.67	0.00	14.29	5.56	5.19
carrying / moving	WS (%)	3.33	4.17	0.00	6.67	0.00	6.67	0.00	14.29	2.78	3.98
hand coordination	WS (%)	3.33	2.08	0.00	3.33	0.00	0.00	0.00	0.00	0.00	1.88
vision	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.90
longer time	(%)	10.00	6.25	0.00	10.00	0.00	10.00	0.00	14.29	8.33	6.36
not finished	(%)	10.00	6.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19
abandoned	(%)	0.00	0.00	0.00	10.00	0.00	0.00	0.00	0.00	8.33	3.15
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.33	1.77
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	0.00	4.17	16.67	13.33	7.41	16 67	11.11	19.05	13.89	10.49
air quality	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66
noise	WS (%)	0.00	10.42	3.33	3.33	0.00	0.00	0.00	0.00	2.78	3.34
vibration	WS (%)	0.00	14.58	6.67	3.33	0.00	0.00	0.00	0.00	5.56	6.87
too bright	WS (%)	0.00	2.08	3.33	3.33	3.70	0.00	0.00	4.76	2.78	2.27
too dark	WS (%)	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64
too hot	WS (%)	0.00	0.00	6.67	0.00	3.70	0.00	0.00	4.76	2.78	2.06
too cold	WS (%)	13.33	2 08	6.67	3.33	0.00	3.33	3.70	4.76	5.56	8.73
other (other)	WS (%)	0.00	0.00	3.33	0.00	0.00	0.00	0.00	0.00	0.00	1.13

Ave.* = average over days 1.5 through 10.5

Table B.1.3: Weighted Severity, Ship B, any MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	33.33	41.27	29.41	56.14	33.33	43.86	42.59	58.33	44.44	38.33
sleep time	WS (%)	31.11	41.27	27.45	52.63	33.33	35.09	33.33	50.00	46.30	28.33
sleep motions	WS (%)	24.44	38.10	21.57	38.60	31.48	54.39	57.41	71.67	55.56	40.00
sleep MS	WS (%)	4.44	11.11	15.69	19.30	5.56	14.04	18.52	16.67	9.26	6.67
sleep (other)	WS (%)	13.33	12.70	11.76	22.81	16.67	3.51	5.56	13.33	5.56	16.67
mental fatigue	WS (%)	26.67	28.57	25.49	36.84	33.33	36.84	40.74	31.67	37.04	26.67
physical fatigue	WS (%)	31.11	33.33	29.41	42.11	37.04	45.61	42.59	35.00	40.74	26.67
sleepy	WS (%)	33.33	42.86	29.41	52.63	42.59	49.12	48.15	50.00	44.44	38.33
headache	WS (%)	28.89	28.57	15.69	33.33	24.07	33.33	27.78	41.67	24.07	25.00
apathy	WS (%)	17.78	25.40	17.65	22.81	25.93	29.82	29.63	28.33	33.33	13.33
tension	WS (%)	24.44	41.27	27.45	29.82	25.93	40.35	38.89	30.00	27.78	26.67
vomit	WS (%)	8.89	1.59	5.88	5.26	0.00	5.26	5.56	5.00	3.70	3.33
nausea	WS (%)	20.00	25.40	11.76	12.28	27.78	31.58	29.63	26.67	14.81	11.67
stomach awareness	WS (%)	13.33	26.98	15.69	19.30	27.78	26.32	35.19	31.67	24.07	18.33
symptom (other)	WS (%)	8.89	9.52	3.92	0.00	3.70	0.00	1.85	8.33	3.70	0.00
MISC	WS (%)	22.67	32.38	18.82	18.95	34.44	35.26	39.44	32.50	35.00	30.50
MS medicine	WS (%)	20.00	42.86	17.65	10.53	27.78	26.32	27.78	40.00	27.78	30.00
decision making	WS (%)	17.78	25.40	17.65	22.81	11.11	28.07	31.48	21.67	25.93	16.67
concentration	WS (%)	31.11	38.10	21.57	31.58	22.22	35.09	38.89	38.33	33.33	23.33
memory	WS (%)	26.67	26.98	27.45	24.56	11.11	29.82	24.07	21.67	20.37	13.33
simple tasks	WS (%)	17.78	22.22	9.80	17.54	12.96	24.56	22.22	25.00	18.52	15.00
balance	WS (%)	28.89	38.10	27.45	29.82	37.04	43.86	57.41	46.67	42.59	35.00
carrying / moving	WS (%)	22.22	33.33	15.69	21.05	24.07	35.09	50.00	35.00	35.19	23.33
hand coordination	WS (%)	13.33	22.22	11.76	14.04	20.37	24.56	31.48	25.00	20.37	18.33
vision	WS (%)	20.00	22.22	7.84	22.81	16.67	28.07	20.37	33.33	14.81	16.67
performance (other)	WS (%)	8.89	11.11	5.88	3.51	0.00	3.51	0.00	3.33	0.00	0.00
more mistakes	(%)	13.33	14.29	5.88	21.05	5.56	15.79	27.78	20.00	16.67	25.00
longer time	(%)	33.33	42.86	17.65	31.58	22.22	42.11	55.56	30.00	22.22	25.00
not finished	(%)	13.33	19.05	11.76	15.79	5.56	26.32	33.33	20.00	22.22	15.00
abandoned	(%)	13.33	19.05	5.88	10.53	11.11	36.84	33.33	15.00	22.22	15.00
not attempt	(%)	13.33	9.52	0.00	0.00	5.56	15.79	22.22	15.00	16.67	15.00
completion (other)	(%)	6.67	4.76	5.88	0.00	5.56	0.00	11.11	0.00	0.00	0.00
cold / flu	WS (%)	26.67	20.63	19.61	15.79	33.33	22.81	22.22	20.00	16.67	13.33
air quality	WS (%)	24.44	12.70	13.73	15.79	16.67	19.30	20.37	16.67	22.22	20.00
noise	WS (%)	20.00	34.92	23.53	28.07	25.93	29.82	29.63	31.67	29.63	23.33
vibration	WS (%)	26.67	38.10	21.57	29.82	29.63	40.35	44.44	50.00	37.04	33.33
too bright	WS (%)	6.67	11.11	5.88	3.51	9.26	8.77	3.70	3.33	1.85	1.67
too dark	WS (%)	2.22	4.76	3.92	5.26	7.41	1.75	5.56	13.33	7.41	3.33
too hot	WS (%)	0.00	3.17	3.92	5.26	5.56	5.26	0.00	10.00	0.00	0.00
too cold	WS (%)	17.78	23.81	5.88	22.81	24.07	15.79	20.37	20.00	16.67	11.67
other (other)	WS (%)	0.00	1.59	0.00	0.00	0.00	3.51	5.56	0.00	0.00	5.00

Table B.1.3: Weighted Severity, Ship B, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	49.28	40.28	44.44	47.06	26.67	56.25	38.46	40.00	54.55	43.05
sleep time	WS (%)	42.03	41.67	38.10	45.10	28.89	52.08	38.46	36.67	60.61	40.13
sleep motions	WS (%)	65.22	50.00	46.03	64.71	40.00	66.67	38.46	53.33	54.55	48.01
sleep MS	WS (%)	10.14	12.50	9.52	11.76	8.89	14.58	7.69	3.33	3.03	10.67
sleep (other)	WS (%)	13.04	5.56	19.05	5.88	8.89	6.25	17.95	10.00	12.12	11.61
mental fatigue	WS (%)	28.99	29.17	34.92	35.29	31.11	37.50	30.77	26.67	24.24	31.71
physical fatigue	WS (%)	37.68	29.17	41.27	41.18	33.33	45.83	33.33	33.33	39.39	36.74
sleepy	WS (%)	44.93	50.00	44.44	52.94	40.00	60.42	46.15	60.00	45.45	46.06
headache	WS (%)	27.54	26.39	26.98	31.37	26.67	37.50	25.64	30.00	24.24	28.35
apathy	WS (%)	24.64	18.06	20.63	35.29	22.22	20.83	25.64	23.33	30.30	24.47
tension	WS (%)	24.64	20.83	26.98	29.41	26.67	29.17	23.08	30.00	24.24	28.82
vomit	WS (%)	2.90	4.17	9.52	7.84	0.00	4.17	0.00	10.00	3.03	4.53
nausea	WS (%)	30.43	18.06	17.46	25.49	22.22	18.75	17.95	13.33	15.15	20.55
stomach awareness	WS (%)	26.09	22 22	22.22	27.45	26.67	18.75	17.95	16.67	12.12	22.57
symptom (other)	WS (%)	1.45	0.00	3.17	11.76	0.00	4.17	15.38	3.33	0.00	4.17
MISC	WS (%)	35.65	29.17	33.81	27.06	36.00	31.88	33.85	26.00	22.73	30.32
MS medicine	WS (%)	30.43	25.00	23.81	35.29	26.67	25.00	30.77	30.00	18.18	27.15
decision making	WS (%)	13.04	12 50	22.22	27.45	20.00	18.75	15.38	23.33	21.21	20.66
concentration	WS (%)	23.19	20.83	30.16	33.33	20.00	25.00	15.38	30.00	24.24	28.19
memory	WS (%)	10.14	9.72	14.29	17.65	15.56	16.67	12.82	13.33	9.09	18.17
simple tasks	WS (%)	11.59	9.72	14.29	19.61	15.56	16.67	17.95	13.33	12.12	16.66
balance	WS (%)	40.58	37.50	36.51	45.10	35.56	52.08	28.21	53.33	24.24	38.94
carrying / moving	WS (%)	36.23	30.56	30.16	43.14	31.11	39.58	25.64	50.00	24.24	31.88
hand coordination	WS (%)	23.19	15.28	19.05	19.61	11.11	20.83	20.51	26.67	12.12	19.47
vision	WS (%)	21.74	12.50	19.05	27.45	8.89	22.92	12.82	20.00	12.12	18.96
performance (other)	WS (%)	0.00	0.00	0.00	3.92	0.00	0.00	0.00	0.00	0.00	2.11
more mistakes	(%)	21.74	8.33	14.29	29.41	6.67	25.00	15.38	10.00	27.27	17.02
longer time	(%)	30.43	8 33	28.57	29.41	26.67	31.25	15.38	30.00	36.36	29.42
not finished	(%)	8.70	4.17	19.05	17.65	6.67	12.50	7.69	20.00	9.09	15.15
abandoned	(%)	13.04	8.33	14.29	11.76	13.33	12.50	15.38	10.00	0.00	14.79
not attempt	(%)	8.70	4.17	19.05	11.76	13.33	12.50	7.69	20.00	9.09	11.55
completion (other)	(%)	0.00	0.00	9.52	0.00	0.00	0.00	0.00	0.00	0.00	2.29
cold / flu	WS (%)	14 49	11.11	25.40	23.53	20.00	18.75	20.51	10.00	12.12	19.31
air quality	WS (%)	10.14	9.72	26.98	15.69	13.33	20.83	17.95	20.00	12.12	17.30
noise	WS (%)	31.88	19.44	36.51	29.41	26.67	31.25	23.08	33.33	21.21	27.86
vibration	WS (%)	43.48	29.17	39.68	45.10	35.56	43.75	38.46	33.33	42.42	36.94
too bright	WS (%)	5.80	4.17	6.35	3.92	2.22	12.50	0.00	10.00	0.00	5.30
too dark	WS (%)	8.70	6.94	11.11	23.53	0.00	10.42	7.69	10.00	9.09	7.50
too hot	WS (%)	8.70	4.17	4.76	11.76	0.00	4.17	5.13	10.00	9.09	4.79
too cold	WS (%)	13 04	15.28	15.87	21.57	11.11	27.08	20.51	30.00	21.21	18.66
other (other)	WS (%)	2.90	0.00	0.00	0.00	4.44	6.25	0.00	0.00	0.00	1.54

Ave.* = average over days 1.5 through 10.5

Table B.1.4: Weighted Severity, Ship B, low MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	33.33	36.36	18.52	56.67	23.33	43.33	36.67	70.37	36.67	36.11
sleep time	WS (%)	30.00	36.36	7.41	43.33	20.00	26.67	20.00	59.26	33.33	22.22
sleep motions	WS (%)	10.00	33.33	7.41	30.00	26.67	50.00	53.33	70.37	46.67	22.22
sleep MS	WS (%)	0.00	0.00	0.00	3.33	0.00	3.33	6.67	0.00	3.33	0.00
sleep (other)	WS (%)	20.00	18.18	3.70	20.00	20.00	6.67	10.00	22.22	10.00	22.22
mental fatigue	WS (%)	23.33	27.27	18.52	23.33	33.33	30.00	33.33	29.63	30.00	16.67
physical fatigue	WS (%)	26.67	27.27	22.22	30.00	36.67	40.00	36.67	29.63	33.33	19.44
sleepy	WS (%)	33.33	33.33	14.81	36.67	36.67	43.33	43.33	48.15	36.67	30.56
headache	WS (%)	30.00	27.27	0.00	10.00	13.33	16.67	20.00	18.52	10.00	19.44
apathy	WS (%)	16.67	24.24	11.11	13.33	23.33	23.33	23.33	14.81	26 67	11.11
tension	WS (%)	26.67	54.55	33.33	20.00	23.33	36.67	36.67	29.63	26.67	16.67
vomit	WS (%)	10.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	0.00	0.00
nausea	WS (%)	16.67	18.18	0.00	3.33	16.67	23.33	20.00	14.81	10.00	5.56
stomach awareness	WS (%)	10.00	18.18	0.00	3.33	13.33	16.67	30.00	18.52	20.00	8.33
symptom (other)	WS (%)	10.00	9.09	0.00	0.00	0.00	0.00	3.33	11.11	0.00	0.00
MISC	WS (%)	16 00	21.82	4.44	3.00	20.00	20.00	28.00	23.33	23.00	16.67
MS medicine	WS (%)	10 00	27.27	11.11	0.00	20.00	20.00	20.00	22.22	30.00	16.67
decision making	WS (%)	16.67	30.30	11.11	13.33	10.00	23.33	33.33	18.52	26.67	5.56
concentration	WS (%)	33 33	39.39	11.11	23.33	23.33	30.00	36.67	29.63	26.67	11.11
memory	WS (%)	30.00	30.30	22.22	16.67	10.00	23.33	26.67	14.81	16.67	5.56
simple tasks	WS (%)	20.00	21.21	0.00	6.67	10.00	20.00	16.67	14.81	13.33	5.56
balance	WS (%)	26.67	39.39	18.52	23.33	36.67	36.67	60.00	44.44	40.00	33.33
carrying / moving	WS (%)	20.00	30.30	0.00	10.00	16.67	26.67	50.00	29.63	23.33	16.67
hand coordination	WS (%)	10.00	21.21	0.00	6.67	16.67	20.00	26.67	18.52	16.67	11.11
vision	WS (%)	20.00	24.24	0 00	13.33	13.33	20.00	20.00	18.52	10.00	5.56
performance (other)	WS (%)	10.00	18.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	20.00	27.27	0.00	10.00	10.00	10.00	10.00	11.11	10.00	16.67
longer time	(%)	30.00	45.45	0.00	20.00	20.00	40.00	50.00	22.22	10.00	8.33
not finished	(%)	10.00	18.18	0.00	0.00	10.00	20.00	20.00	11.11	10.00	0.00
abandoned	(%)	10.00	18.18	0.00	0.00	10.00	40.00	30.00	11.11	10.00	0.00
not attempt	(%)	20.00	18.18	0.00	0.00	10.00	30.00	20.00	22.22	10.00	8.33
completion (other)	(%)	10.00	9.09	0.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
cold / flu	WS (%)	26.67	33.33	7.41	16.67	33.33	30.00	20.00	25.93	10.00	8.33
air quality	WS (%)	26.67	18.18	22.22	20.00	20.00	20.00	26.67	7.41	26.67	13.89
noise	WS (%)	16.67	24.24	22.22	23.33	13.33	20.00	20.00	18.52	20.00	13.89
vibration	WS (%)	23.33	27.27	11.11	16.67	13.33	30.00	43.33	40.74	26.67	19.44
too bright	WS (%)	10.00	21.21	11.11	6.67	16.67	6.67	6.67	7.41	3.33	2.78
too dark	WS (%)	3.33	6.06	3.70	3.33	0.00	3.33	3.33	0.00	3.33	0.00
too hot	WS (%)	0.00	0.00	0.00	3.33	0.00	0.00	0.00	0.00	0.00	0.00
too cold	WS (%)	26.67	33.33	3.70	33.33	36.67	26.67	23.33	29.63	16.67	11.11
other (other)	WS (%)	0.00	0 00	0.00	0.00	0.00	6.67	0.00	0.00	0.00	8.33

Table B.1.4: Weighted Severity, Ship B, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	43.59	35.29	38.10	45.83	20.83	57.14	33.33	38.10	50.00	39.66
sleep time	WS (%)	33.33	33.33	26.19	37.50	20.83	38.10	33.33	33.33	66.67	32.69
sleep motions	WS (%)	53.85	41.18	42.86	62.50	50.00	52.38	53.33	57.14	50.00	42.80
sleep MS	WS (%)	0.00	7.84	4.76	4.17	0.00	0.00	0.00	0.00	0.00	1.76
sleep (other)	WS (%)	15.38	7.84	21.43	0.00	12.50	0.00	20.00	0.00	25.00	13.43
mental fatigue	WS (%)	23.08	25.49	30.95	29.17	25.00	23.81	33.33	33.33	16.67	26.64
physical fatigue	WS (%)	28.21	27.45	35.71	33.33	29.17	33.33	33.33	33.33	33.33	31.01
sleepy	WS (%)	35.90	41.18	35.71	45.83	37.50	52.38	53.33	61.90	41.67	40.12
headache	WS (%)	20.51	25.49	23.81	20.83	25.00	19.05	20.00	28.57	8.33	18.78
apathy	WS (%)	10.26	7.84	9.52	16.67	12.50	0.00	20.00	14.29	25.00	16.00
tension	WS (%)	20.51	13.73	16.67	20.83	16.67	19.05	26.67	38.10	16.67	25.95
vomit	WS (%)	2.56	5.88	9.52	16.67	0.00	0.00	0.00	14.29	0.00	3.30
nausea	WS (%)	15.38	9.80	9.52	16.67	12.50	0.00	20.00	14.29	0.00	11.93
stomach awareness	WS (%)	12.82	15.69	14.29	16.67	12.50	0.00	20.00	14.29	0.00	12.87
symptom (other)	WS (%)	2.56	0.00	0.00	12.50	0.00	0.00	20.00	0.00	0.00	3.61
MISC	WS (%)	20.00	23.53	18.57	8.75	18.75	12.86	20.00	20.00	2.50	16.91
MS medicine	WS (%)	23.08	17.65	21.43	25.00	12.50	14.29	20.00	28.57	0.00	17.88
decision making	WS (%)	10.26	11.76	16.67	25.00	20.83	4.76	26.67	28.57	25.00	18.86
concentration	WS (%)	15.38	13.73	23.81	29.17	16.67	9.52	26.67	38.10	33.33	24.79
memory	WS (%)	10.26	9.80	9.52	16.67	16.67	4.76	20.00	14.29	8.33	16.13
simple tasks	WS (%)	12.82	9.80	9.52	20.83	12.50	4.76	20.00	14.29	16.67	13.13
balance	WS (%)	30.77	31.37	33.33	41.67	54.17	52.38	33.33	57.14	25.00	37.80
carrying / moving	WS (%)	23.08	21.57	23.81	33.33	45.83	33.33	33.33	57.14	16.67	26.91
hand coordination	WS (%)	17.95	13.73	11.90	25.00	12.50	9.52	20.00	28.57	16.67	15.97
vision	WS (%)	15.38	11.76	11.90	25.00	12.50	4.76	20.00	14.29	25.00	15.03
performance (other)	WS (%)	0.00	0.00	0.00	8.33	0.00	0.00	0.00	0.00	0.00	1.92
more mistakes	(%)	15.38	5.88	7.14	25.00	12.50	14.29	20.00	14.29	0.00	12.61
longer time	(%)	23.08	5.88	28.57	37.50	37.50	42.86	20.00	42.86	50.00	28.12
not finished	(%)	7.69	5.88	14.29	25.00	12.50	14.29	20.00	28.57	0.00	11.97
abandoned	(%)	7.69	11.76	7.14	12.50	12.50	0.00	20.00	14.29	0.00	11.33
not attempt	(%)	7.69	5.88	14.29	12.50	25.00	14.29	20.00	28.57	25.00	15.37
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53
cold / flu	WS (%)	15.38	9.80	26.19	25.00	16.67	9.52	20.00	14.29	8.33	18.78
air quality	WS (%)	5.13	7.84	30.95	12.50	12.50	14.29	6.67	19.05	25.00	17.66
noise	WS (%)	15.38	7.84	28.57	8.33	16.67	19.05	6.67	33.33	25.00	18.58
vibration	WS (%)	28.21	15.69	26.19	25.00	25.00	28.57	33.33	28.57	33.33	26.09
too bright	WS (%)	7.69	5.88	9.52	8.33	4.17	19.05	0.00	14.29	0.00	8.50
too dark	WS (%)	0.00	0.00	4.76	12.50	0.00	0.00	0.00	0.00	0.00	2.30
too hot	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
too cold	WS (%)	15.38	13.73	19.05	25.00	20.83	28.57	40.00	42.86	25.00	24.82
other (other)	WS (%)	5.13	0.00	0.00	0.00	8.33	14.29	0.00	0.00	0.00	2.25

Ave.* = average over days 1.5 through 10.5

Table B.1.5: Weighted Severity, Ship B, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	33.33	46.67	41.67	55.56	45.83	44.44	50.00	48.48	54.17	41.67
sleep time	WS (%)	33.33	46.67	50.00	62.96	50.00	44.44	50.00	42.42	62.50	37.50
sleep motions	WS (%)	53.33	43.33	37.50	48.15	37.50	59.26	62.50	72.73	66.67	66.67
sleep MS	WS (%)	13.33	23.33	33.33	37.04	12.50	25.93	33.33	30.30	16.67	16.67
sleep (other)	WS (%)	0.00	6.67	20.83	25.93	12.50	0.00	0.00	6.06	0.00	8.33
mental fatigue	WS (%)	33.33	30.00	33.33	51.85	33.33	44.44	50.00	33.33	45.83	41.67
physical fatigue	WS (%)	40.00	40.00	37.50	55.56	37.50	51.85	50.00	39.39	50.00	37.50
sleepy	WS (%)	33.33	53.33	45.83	70.37	50.00	55.56	54.17	51.52	54.17	50.00
headache	WS (%)	26.67	30.00	33.33	59.26	37.50	51.85	37.50	60.61	41.67	33.33
apathy	WS (%)	20.00	26.67	25.00	33.33	29.17	37.04	37.50	39.39	41.67	16.67
tension	WS (%)	20.00	26.67	20.83	40.74	29.17	44.44	41.67	30.30	29.17	41.67
vomit	WS (%)	6.67	3.33	12.50	11.11	0.00	11.11	12.50	6.06	8.33	8.33
nausea	WS (%)	26.67	33.33	25.00	22.22	41.67	40.74	41.67	36.36	20.83	20.83
stomach awareness	WS (%)	20.00	36.67	33.33	37.04	45.83	37.04	41.67	42.42	29.17	33.33
symptom (other)	WS (%)	6.67	10.00	8.33	0.00	8.33	0.00	0.00	6.06	8.33	0.00
MISC	WS (%)	36.00	44.00	35.00	36.67	52.50	52.22	53.75	40.00	50.00	51.25
MS medicine	WS (%)	40.00	60.00	25.00	22.22	37.50	33.33	37.50	54.55	25.00	50.00
decision making	WS (%)	20.00	20.00	25.00	33.33	12.50	33.33	29.17	24.24	25.00	33.33
concentration	WS (%)	26.67	36.67	33.33	40.74	20.83	40.74	41.67	45.45	41.67	41.67
memory	WS (%)	20.00	23.33	33.33	33.33	12.50	37.04	20.83	27.27	25.00	25.00
simple tasks	WS (%)	13.33	23.33	20.83	29.63	16.67	29.63	29.17	33.33	25.00	29.17
balance	WS (%)	33.33	36.67	37.50	37.04	37.50	51.85	54.17	48.48	45.83	37.50
carrying / moving	WS (%)	26.67	36.67	33.33	33.33	33.33	44.44	50.00	39.39	50.00	33.33
hand coordination	WS (%)	20.00	23.33	25.00	22.22	25.00	29.63	37.50	30.30	25.00	29.17
vision	WS (%)	20.00	20.00	16.67	33.33	20.83	37.04	20.83	45.45	20.83	33.33
performance (other)	WS (%)	6.67	3.33	12.50	7.41	0.00	7.41	0.00	6.06	0.00	0.00
more mistakes	(%)	0.00	0.00	12.50	33.33	0.00	22.22	50.00	27.27	25.00	37.50
longer time	(%)	40.00	40.00	37.50	44.44	25.00	44.44	62.50	36.36	37.50	50.00
not finished	(%)	20.00	20.00	25.00	33.33	0.00	33.33	50.00	27.27	37.50	37.50
abandoned	(%)	20.00	20.00	12.50	22.22	12.50	33.33	37.50	18.18	37.50	37.50
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	25.00	9.09	25.00	25.00
completion (other)	(%)	0.00	0.00	12.50	0.00	12.50	0.00	12.50	0.00	0.00	0.00
cold / flu	WS (%)	26.67	6.67	33.33	14.81	33.33	14.81	25.00	15.15	25.00	20.83
air quality	WS (%)	20.00	6.67	4.17	11.11	12.50	18.52	12.50	24.24	16.67	29.17
noise	WS (%)	26.67	46.67	25.00	33.33	41.67	40.74	41.67	42.42	41.67	37.50
vibration	WS (%)	33.33	50.00	33.33	44.44	50.00	51.85	45.83	57.58	50.00	54.17
too bright	WS (%)	0.00	0.00	0.00	0.00	0.00	11.11	0.00	0.00	0.00	0.00
too dark	WS (%)	0.00	3.33	4.17	7.41	16.67	0.00	8.33	24.24	12.50	8.33
too hot	WS (%)	0.00	6.67	8.33	7.41	12.50	11.11	0.00	18.18	0.00	0.00
too cold	WS (%)	0.00	13.33	8.33	11.11	8.33	3.70	16.67	12.12	16.67	12.50
other (other)	WS (%)	0.00	3.33	0.00	0.00	0.00	0.00	12.50	0.00	0.00	0.00

Table B.1.5. Weighted Severity, Ship B, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	56.67	52.38	57.14	48.15	33.33	55.56	41.67	44.44	57.14	47.81
sleep time	WS (%)	53.33	61.90	61.90	51.85	38.10	62.96	41.67	44.44	57.14	50.17
sleep motions	WS (%)	80.00	71.43	52.38	66.67	28.57	77.78	29.17	44.44	57.14	55.54
sleep MS	WS (%)	23.33	23.81	19.05	18.52	19.05	25.93	12.50	11.11	4.76	21.08
sleep (other)	WS (%)	10.00	0.00	14.29	11.11	4.76	11.11	16.67	33.33	4.76	9.81
mental fatigue	WS (%)	36.67	38.10	42.86	40.74	38.10	48.15	29.17	11.11	28.57	37.40
physical fatigue	WS (%)	50.00	33.33	52.38	48.15	38.10	55.56	33.33	33.33	42.86	43.49
sleepy	WS (%)	56.67	71.43	61.90	59.26	42.86	66.67	41.67	55.56	47.62	53.78
headache	WS (%)	36.67	28.57	33.33	40.74	28.57	51.85	29.17	33.33	33.33	38.28
apathy	WS (%)	43.33	42.86	42.86	51.85	33.33	37.04	29.17	44.44	33.33	34.98
tension	WS (%)	30.00	38.10	47.62	37.04	38.10	37.04	20.83	11.11	28.57	32.27
vomit	WS (%)	3.33	0.00	9.52	0.00	0.00	7.41	0.00	0.00	4.76	5.53
nausea	WS (%)	50.00	38.10	33.33	33.33	33.33	33.33	16.67	11.11	23.81	30.65
stomach awareness	WS (%)	43.33	38.10	38.10	37.04	42.86	33.33	16.67	22.22	19.05	34.06
symptom (other)	WS (%)	0.00	0.00	9.52	11.11	0.00	7.41	12.50	11.11	0.00	5.23
MISC	WS (%)	56.00	42.86	64.29	43.33	55.71	46.67	42.50	40.00	34.29	46.16
MS medicine	WS (%)	40.00	42.86	28.57	44.44	42.86	33.33	37.50	33.33	28.57	37.71
decision making	WS (%)	16.67	14.29	33.33	29.63	19.05	29.63	8.33	11.11	19.05	23.00
concentration	WS (%)	33.33	38.10	42.86	37.04	23.81	37.04	8.33	11.11	19.05	32.64
memory	WS (%)	10.00	9.52	23.81	18.52	14.29	25.93	8.33	11.11	9.52	20.46
simple tasks	WS (%)	10.00	9.52	23.81	18.52	19.05	25.93	16.67	11.11	9.52	20.75
balance	WS (%)	53.33	52.38	42.86	48.15	14.29	51.85	25.00	44.44	23.81	40.84
carrying / moving	WS (%)	53.33	52.38	42.86	51.85	14.29	44.44	20.83	33.33	28.57	38.02
hand coordination	WS (%)	30.00	19.05	33.33	14.81	9.52	29.63	20.83	22.22	9.52	24.00
vision	WS (%)	30.00	14.29	33.33	29.63	4.76	37.04	8.33	33.33	4.76	24.41
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28
more mistakes	(%)	30.00	14.29	28.57	33.33	0.00	33.33	12.50	0.00	42.86	21.20
longer time	(%)	40.00	14.29	28.57	22.22	14.29	22.22	12.50	0.00	28.57	31.60
not finished	(%)	10.00	0.00	28.57	11.11	0.00	11.11	0.00	0.00	14.29	18.90
abandoned	(%)	20.00	0.00	28.57	11.11	14.29	22.22	12.50	0.00	0.00	18.94
not attempt	(%)	10.00	0.00	28.57	11.11	0.00	11.11	0.00	0.00	0.00	7.63
completion (other)	(%)	0.00	0.00	28.57	0.00	0.00	0.00	0.00	0.00	0.00	3.48
cold / flu	WS (%)	13.33	14.29	23.81	22.22	23.81	25.93	20.83	0.00	14.29	19.69
air quality	WS (%)	16.67	14.29	19.05	18.52	14.29	25.93	25.00	22.22	4.76	16.64
noise	WS (%)	53.33	47.62	52.38	48.15	38.10	40.74	33.33	33.33	19.05	39.12
vibration	WS (%)	63.33	61.90	66.67	62.96	47.62	55.56	41.67	44.44	47.62	50.65
too bright	WS (%)	3.33	0.00	0.00	0.00	0.00	7.41	0.00	0.00	0.00	1.15
too dark	WS (%)	20.00	23.81	23.81	33.33	0.00	18.52	12.50	33.33	14.29	13.92
too hot	WS (%)	20.00	14.29	14.29	22.22	0.00	7.41	8.33	33.33	14.29	10.44
too cold	WS (%)	10.00	19.05	9.52	18.52	0.00	25.93	8.33	0.00	19.05	11.22
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83

Ave.* = average over days 1.5 through 10.5

Table C.1.1: Weighted Severity, Ship C, all subjects, days 1.5 to 6.0 (page 1 of 2)

Parameter	Units	Day of Trial									
		1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	23.70	35.16	29.47	36.43	31.46	39.48	32.16	41.25	30.95	38.66
sleep time	WS (%)	27.90	39.58	30.43	40.57	33.33	38.77	32.63	42.69	32.03	40.51
sleep motions	WS (%)	18.52	25.26	23.67	27.91	25.35	32.15	31.22	37.41	29.65	37.27
sleep MS	WS (%)	1.23	2.08	2.17	1.81	3.29	2.84	3.76	3.84	4.55	4.63
sleep (other)	WS (%)	10.62	12.24	9.66	12.40	10.09	10.64	6.81	5.28	3.90	6.71
mental fatigue	WS (%)	16.79	22.92	17.15	24.29	17.61	22.70	20.66	23.50	20.78	28.47
physical fatigue	WS (%)	20.74	22.92	17.63	23.77	19.95	24.35	22.54	25.66	21.00	30.79
sleepy	WS (%)	30.37	36.98	30.43	37.21	33.57	37.12	31.92	37.41	33.98	40.97
headache	WS (%)	10.86	15.89	13.53	14.99	18.54	16.31	15.49	18.23	17.97	20.37
apathy	WS (%)	20.00	25.00	23.19	24.55	27.70	23.88	28.40	28.78	27.71	30.79
tension	WS (%)	9.38	15.10	13.29	13.70	11.74	14.42	14.08	16.55	12.77	17.13
vomit	WS (%)	0.25	1.04	2.17	1.81	1.88	1.18	0.94	2.40	2.16	1.85
nausea	WS (%)	2.47	3.65	3.86	4.13	2.35	2.84	3.99	5.04	5.41	4.86
stomach awareness	WS (%)	5.19	6.25	4.35	5.17	4.69	6.86	4.93	6.71	7.36	6.71
symptom (other)	WS (%)	2.96	3.91	2.42	3.62	2.11	2.84	2.35	2.40	1.73	1.16
MISC	WS (%)	4.59	8.44	5.00	6.67	7.11	7.94	7.46	8.78	8.05	9.58
MS medicine	WS (%)	2.22	2.34	1.45	1.55	2.82	0.71	2.82	1.44	3.25	1.39
decision making	WS (%)	6.42	9.64	8.21	10.59	7.51	10.40	6.81	9.35	10.61	12.27
concentration	WS (%)	17.04	21.35	17.15	17.83	17.37	20.09	14.79	16.07	15.80	21.06
memory	WS (%)	8.15	10.68	10.14	10.59	8.22	10.40	6.81	9.11	9.96	11.57
simple tasks	WS (%)	4.20	6.51	6.28	6.20	4.46	7.33	4.93	6.95	6.49	7.87
balance	WS (%)	9.88	14.06	10.87	16.02	12.44	17.73	15.02	17.03	16.45	20.60
carrying / moving	WS (%)	6.17	10.16	6.28	12.14	8.45	15.13	12.44	12.23	12.34	16.20
hand coordination	WS (%)	2.72	5.99	3.62	6.72	5.40	7.09	4.46	7.19	7.36	9.26
vision	WS (%)	8.64	11.98	9.66	13.18	10.33	11.11	7.98	12.47	11.04	12.04
performance (other)	WS (%)	1.73	2.34	3.38	1.81	0.94	0.95	0.94	1.68	0.87	1.62
more mistakes	(%)	2.22	7.81	5.07	4.65	6.34	4.96	2.11	5.04	5.19	6.94
longer time	(%)	9.63	14.06	7.97	12.40	12.68	13.48	11.97	15.11	11.04	12.50
not finished	(%)	4.44	3.13	2.17	1.55	4.23	3.55	1.41	2.88	1.95	5.56
abandoned	(%)	2.22	3.13	2.90	3.10	3.52	4.96	2.11	3.60	3.25	4.17
not attempt	(%)	3.70	3.13	2.17	3.10	2.11	4.26	2.82	5.76	2.60	5.56
completion (other)	(%)	0.00	0.00	2.17	1.55	0.70	0.71	1.41	0.00	0.00	0.00
cold / flu	WS (%)	11.36	13.54	11.11	13.18	12.44	14.66	11.97	14.63	13.20	14.12
air quality	WS (%)	17.78	14.84	15.94	18.09	17.84	17.97	15.73	18.47	15.80	18.06
noise	WS (%)	20.99	20.83	19.32	20.16	16.43	19.86	21.13	20.86	21.21	20.37
vibration	WS (%)	20.00	21.61	18.12	24.29	15.96	24.11	25.35	21.34	23.16	22.92
too bright	WS (%)	6.17	5.21	5.80	6.20	3.52	4.49	5.40	4.08	5.19	4.86
too dark	WS (%)	7.41	11.20	8.45	12.40	8.92	12.77	7.75	12.23	8.23	11.11
too hot	WS (%)	7.65	4.95	4.83	3.10	4.46	3.07	5.87	3.12	4.76	2.08
too cold	WS (%)	13.33	14.06	13.29	16.80	11.97	16.78	12.68	15.59	11.47	16.67
other (other)	WS (%)	1.98	1.04	0.72	1.55	0.23	0.24	0.23	0.24	0.87	0.93

Table C.1.1: Weighted Severity, Ship C, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	30.34	37.44	31.80	45.60	32.64	38.52	24.07	38.40	31.16	34.14
sleep time	WS (%)	31.26	37.92	31.58	45.60	32.18	43.21	27.55	40.00	31.16	35.73
sleep motions	WS (%)	32.18	35.75	26.54	43.52	30.09	30.12	20.37	29.87	23.91	29.51
sleep MS	WS (%)	4.14	3.62	4.61	4.86	4.40	4.20	3.24	2.40	2.90	3.40
sleep (other)	WS (%)	5.75	5.07	4.61	5.56	2.08	8.15	5.79	8.27	3.26	7.20
mental fatigue	WS (%)	19.77	23.43	22.15	28.94	24.07	28.40	21.06	27.73	26.81	23.01
physical fatigue	WS (%)	22.30	25.12	23.03	29.86	25.69	30.62	23.84	28.00	27.17	24.47
sleepy	WS (%)	31.03	37.20	32.46	37.73	35.19	40.49	33.10	40.00	35.14	35.38
headache	WS (%)	18.39	17.15	18.20	18.52	18.29	18.02	16.20	17.87	15.94	16.88
apathy	WS (%)	28.51	31.40	28.29	32.18	31.71	33.09	29.63	32.80	27.54	28.16
tension	WS (%)	14.25	15.94	12.06	16.90	15.28	19.26	15.97	19.20	13.41	14.76
vomit	WS (%)	3.22	1.69	2.85	3.01	2.31	1.48	1.39	1.87	1.81	1.86
nausea	WS (%)	5.52	4.11	5.92	5.32	4.63	3.95	3.24	4.53	3.99	4.20
stomach awareness	WS (%)	8.05	5.56	7.24	8.10	5.79	5.19	5.32	5.60	6.52	6.08
symptom (other)	WS (%)	2.07	1.93	1.54	1.39	0.93	0.25	3.01	1.87	0.00	2.02
MISC	WS (%)	7.24	8.19	8.36	9.31	8.06	6.96	6.04	6.72	8.26	7.51
MS medicine	WS (%)	2.76	1.45	1.97	2.78	3.47	0.00	1.39	0.80	2.17	1.94
decision making	WS (%)	9.20	9.90	10.09	11.81	9.49	14.32	8.56	12.27	9.42	9.84
concentration	WS (%)	15.17	14.49	18.20	21.76	15.97	20.99	15.28	20.80	13.77	17.63
memory	WS (%)	8.74	9.18	8.99	11.57	8.56	11.60	9.26	11.47	9.06	9.69
simple tasks	WS (%)	6.21	6.04	7.46	9.26	7.64	7.16	5.32	7.47	6.88	6.56
balance	WS (%)	16.55	14.49	16.23	18.98	16.44	15.56	10.88	15.20	12.32	15.09
carrying / moving	WS (%)	13.33	10.39	11.62	16.20	9.95	11.36	9.49	12.00	10.51	11.39
hand coordination	WS (%)	7.82	6.52	7.02	8.10	7.18	7.65	5.32	7.73	6.88	6.53
vision	WS (%)	10.80	9.66	9.21	9.72	8.80	11.36	7.18	11.20	10.51	10.36
performance (other)	WS (%)	0.92	0.97	1.97	1.16	1.62	3.21	0.69	2.13	1.09	1.58
more mistakes	(%)	2.76	2.17	7.24	5.56	4.86	5.93	4.17	4.80	4.35	4.85
longer time	(%)	11.72	7.25	11.84	11.81	10.42	11.85	8.33	8.80	6.52	11.02
not finished	(%)	1.38	2.17	1.32	4.17	2.78	3.70	0.69	1.60	3.26	2.73
abandoned	(%)	2.76	2.90	3.29	2.78	2.78	2.96	0.69	2.40	1.09	2.87
not attempt	(%)	2.76	2.90	0.66	3.47	1.39	4.44	1.39	2.40	1.09	2.93
completion (other)	(%)	0.69	0.00	0.00	0.69	0.00	2.22	0.00	0.80	0.00	0.58
cold / flu	WS (%)	13.79	14.49	13.82	14.58	11.81	14.57	11.34	14.67	14.49	13.36
air quality	WS (%)	15.17	14.98	15.57	16.90	18.29	16.05	14.35	16.53	15.22	16.50
noise	WS (%)	19.54	18.36	21.05	18.98	21.30	17.28	17.13	15.73	21.01	19.56
vibration	WS (%)	22.30	22.71	22.81	22.69	21.06	19.51	17.59	18.40	22.10	21.37
too bright	WS (%)	6.44	5.07	7.02	6.02	6.25	4.20	6.25	5.60	8.33	5.58
too dark	WS (%)	8.05	9.42	6.80	7.64	8.80	11.85	8.33	9.60	6.16	9.32
too hot	WS (%)	5.06	4.83	5.92	3.24	4.40	3.21	5.09	1.60	5.07	4.33
too cold	WS (%)	12.87	12.80	10.31	11.11	13.43	14.07	11.34	14.13	13.77	13.50
other (other)	WS (%)	0.92	0.24	0.44	1.39	1.39	2.47	2.31	1.07	0.72	1.00

Ave.* = average over days 1.5 through 10.5

Table C.1.2: Weighted Severity, Ship C, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	17.92	32.93	23.76	30.98	26.45	31.48	27.60	33.69	25.59	29.26
sleep time	WS (%)	22.94	36.99	25.89	35.69	26.45	32.22	27.96	35.84	25.59	31.11
sleep motions	WS (%)	15.77	18.29	17.73	21.96	19.57	23.33	25.81	30.82	24.58	26.67
sleep MS	WS (%)	0.00	0.00	0.00	0.00	1.45	0.00	2.15	0.36	1.35	1.48
sleep (other)	WS (%)	11.47	11.79	8.87	10.98	7.25	12.59	5.73	3.58	2.36	5.56
mental fatigue	WS (%)	10.75	19.92	13.12	18.04	10.87	16.30	13.62	13.98	13.47	18.89
physical fatigue	WS (%)	16.13	19.51	14.89	16.86	14.13	17.78	16.13	16.13	13.47	22.22
sleepy	WS (%)	22.58	32.52	23.05	31.76	26.81	30.37	25.45	29.03	26.26	30.74
headache	WS (%)	7.53	10.98	9.22	10.98	14.49	10.74	9.68	12.19	11.78	13.70
apathy	WS (%)	17.20	20.73	18.09	18.04	23.55	17.04	23.66	17.92	20.88	21.85
tension	WS (%)	7.17	10.57	10.64	8.63	7.61	8.15	7.89	8.96	6.73	8.52
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	4.30	3.25	3.19	3.14	1.09	1.48	2.15	1.43	1.01	1.11
MISC	WS (%)	0.86	2.07	0.64	1.06	1.63	1.44	2.15	2.58	2.12	3.00
MS medicine	WS (%)	1.08	1.22	0.00	0.00	1.09	0.00	1.08	1.08	1.01	1.11
decision making	WS (%)	3.94	6.10	5.32	4.71	3.99	4.44	2.51	4.30	3.03	4.44
concentration	WS (%)	11.11	17.89	14.54	12.94	12.68	14.44	8.96	11.47	9.09	12.96
memory	WS (%)	5.38	7.32	8.16	7.06	4.35	5.56	3.23	3.94	4.38	7.04
simple tasks	WS (%)	2.15	4.47	2.48	2.75	2.54	2.59	1.43	2.15	1.68	4.07
balance	WS (%)	7.17	7.72	5.67	9.41	8.70	9.63	11.11	8.96	10.77	12.59
carrying / moving	WS (%)	2.87	6.50	3.19	5.88	4.35	6.67	9.32	6.09	5.72	8.89
hand coordination	WS (%)	1.43	3.66	1.42	1.57	2.54	1.85	2.15	2.15	2.36	4.44
vision	WS (%)	5.38	8.13	6.38	9.41	6.16	5.19	5.02	6.09	5.05	5.93
performance (other)	WS (%)	2.15	1.22	1.06	0.00	0.00	0.74	0.00	0.36	0.00	0.00
more mistakes	(%)	1.08	6.10	1.06	2.35	2.17	2.22	1.08	1.08	0.00	2.22
longer time	(%)	5.38	12.20	5.32	5.88	5.43	7.78	7.53	9.68	5.05	6.67
not finished	(%)	3.23	3.66	1.06	0.00	1.09	2.22	1.08	1.08	0.00	3.33
abandoned	(%)	1.08	2.44	2.13	1.18	2.17	1.11	2.15	3.23	1.01	3.33
not attempt	(%)	3.23	3.66	1.06	2.35	1.09	2.22	4.30	4.30	1.01	3.33
completion (other)	(%)	0.00	0.00	1.06	0.00	1.09	1.11	1.08	0.00	0.00	0.00
cold / flu	WS (%)	8.60	9.35	7.09	8.24	8.70	7.41	8.60	7.89	7.41	6 67
air quality	WS (%)	12.54	11.79	11.35	12.55	14.86	9.63	11.47	9.32	10.10	8.89
noise	WS (%)	18.28	16.67	14.89	12.55	14.49	12.59	17.56	13.62	15.49	11.11
vibration	WS (%)	16.85	15.85	14.18	16.08	12.32	15.19	20.43	13.26	15.82	13.70
too bright	WS (%)	5.73	4.88	4.96	6.27	4.71	3.70	4.30	2.87	4.38	2.96
too dark	WS (%)	6.81	9.35	7.80	7.84	7.25	11.11	6.09	9.68	5.72	8.15
too hot	WS (%)	7.17	4.47	4.61	1.57	3.26	2.22	3.58	2.51	3.70	1.85
too cold	WS (%)	11.11	11.79	11.70	13.33	10.14	12.96	11.47	11.83	10.10	13.33
other (other)	WS (%)	2.15	0.81	1.06	2.35	0.36	0.00	0.00	0.00	1.01	0.00

Table C.1.2: Weighted Severity, Ship C, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	25.43	31.87	27.61	37.23	28.72	32.59	22.92	32.94	28.81	28.83
sleep time	WS (%)	26.46	31.87	27.27	35.82	26.95	38.52	25.69	33.33	27.68	30.22
sleep motions	WS (%)	26.80	28.57	19.19	31.91	24.11	19.26	15.28	21.03	18.64	22.60
sleep MS	WS (%)	1.03	0.37	0.34	1.06	0.00	0.00	1.04	0.00	0.00	0.56
sleep (other)	WS (%)	3.44	4.76	5.39	4.61	1.77	7.04	4.86	5.56	3.95	6.40
mental fatigue	WS (%)	12.03	17.22	14.14	18.79	15.96	21.11	15.97	20.24	18.08	15.92
physical fatigue	WS (%)	14.43	17.95	15.15	20.21	17.38	22.96	18.40	20.24	20.34	17.60
sleepy	WS (%)	24.05	30.40	24.24	28.72	28.01	35.56	30.56	32.14	28.81	28.48
headache	WS (%)	12.71	11.72	13.13	14.54	13.48	13.33	12.50	12.70	10.73	11.90
apathy	WS (%)	21.99	23.44	24.24	24.11	28.01	27.78	23.96	25.40	21.47	22.07
tension	WS (%)	7.56	9.16	7.41	10.64	8.16	12.22	9.38	11.11	6.78	8.80
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	1.03	1.83	2.02	1.06	1.06	0.00	3.13	1.19	0.00	1.76
MISC	WS (%)	1.75	2.53	1.52	2.02	3.83	2.44	2.29	2.26	1.36	1.98
MS medicine	WS (%)	1.03	0.00	0.00	1.06	1.06	0.00	0.00	0.00	0.00	0.57
decision making	WS (%)	4.47	5.13	4.04	4.26	3.55	7.41	4.51	5.95	3.39	4.50
concentration	WS (%)	9.62	10.62	10.77	13.83	9.22	15.93	9.72	13.49	7.91	11.96
memory	WS (%)	4.12	4.40	5.05	5.67	3.90	5.93	4.17	5.56	2.26	5.13
simple tasks	WS (%)	2.41	2.56	1.35	3.55	2.84	2.22	1.39	2.38	1.13	2.43
balance	WS (%)	11.68	9.16	8.42	8.51	11.70	7.41	6.94	6.35	3.95	8.73
carrying / moving	WS (%)	7.56	4.76	4.71	6.74	6.03	4.44	4.17	4.37	2.26	5.50
hand coordination	WS (%)	4.12	1.47	2.02	2.48	2.13	2.22	0.69	1.59	1.13	2.18
vision	WS (%)	6.53	5.49	4.38	4.26	4.26	6.67	4.17	6.35	5.65	5.81
performance (other)	WS (%)	0.69	0.00	0.67	0.35	0.00	1.85	0.35	1.19	0.00	0.56
more mistakes	(%)	1.03	0.00	3.03	3.19	2.13	3.33	0.00	1.19	1.69	1.84
longer time	(%)	7.22	4.40	7.07	6.38	7.45	8.89	4.17	7.14	6.78	6.86
not finished	(%)	1.03	1.10	0.00	2.13	1.06	1.11	0.00	0.00	1.69	1.31
abandoned	(%)	2.06	1.10	1.01	1.06	1.06	1.11	0.00	0.00	0.00	1.43
not attempt	(%)	2.06	1.10	0.00	1.06	0.00	2.22	0.00	1.19	0.00	1.80
completion (other)	(%)	1.03	0.00	0.00	0.00	0.00	1.11	0.00	0.00	0.00	0.34
cold / flu	WS (%)	8.25	6.96	9.09	9.57	9.57	8.52	7.29	6.75	6.21	8.01
air quality	WS (%)	8.93	8.42	10.10	9.93	12.77	11.48	9.03	6.35	9.60	10.48
noise	WS (%)	14.09	10.62	15.82	10.28	16.67	10.00	12.15	6.35	13.56	13.52
vibration	WS (%)	16.15	13.19	16.50	13.12	16.31	12.96	12.50	9.13	15.25	14.67
too bright	WS (%)	5.50	2.20	5.39	3.55	5.67	2.59	5.90	3.17	6.21	4.47
too dark	WS (%)	6.19	7.33	7.07	7.09	7.80	9.63	7.64	8.33	6.78	7.77
too hot	WS (%)	3.78	2.56	3.37	1.77	3.55	1.85	3.47	0.40	5.65	3.23
too cold	WS (%)	12.71	10.26	10.10	9.57	13.12	11.85	12.50	11.90	13.56	11.76
other (other)	WS (%)	0.00	0.00	0.34	0.71	0.00	0.74	0.69	0.00	0.00	0.54

Ave.* = average over days 1.5 through 10.5

Table C.1.3: Weighted Severity, Ship C, any MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	36.51	39.13	41.67	46.97	40.67	53.59	40.82	56.52	40.61	54.32
sleep time	WS (%)	38.89	44.20	40.15	50.00	46.00	50.33	41.50	56.52	43.64	56.17
sleep motions	WS (%)	24.60	37.68	36.36	39.39	36.00	47.71	41.50	50.72	38.79	54.94
sleep MS	WS (%)	3.97	5.80	6.82	5.30	6.67	7.84	6.80	10.87	10.30	9.88
sleep (other)	WS (%)	8.73	13.04	11.36	15.15	15.33	7.19	8.84	8.70	6.67	8.64
mental fatigue	WS (%)	30.16	28.26	25.76	36.36	30.00	33.99	34.01	42.75	33.94	44.44
physical fatigue	WS (%)	30.95	28.99	23.48	37.12	30.67	35.95	34.69	44.93	34.55	45.06
sleepy	WS (%)	47.62	44.93	46.21	47.73	46.00	49.02	44.22	54.35	47.88	58.02
headache	WS (%)	18.25	24.64	22.73	22.73	26.00	26.14	26.53	30.43	29.09	31.48
apathy	WS (%)	26.19	32.61	34.09	37.12	35.33	35.95	37.41	50.72	40.00	45.68
tension	WS (%)	14.29	23.19	18.94	23.48	19.33	25.49	25.85	31.88	23.64	31.48
vomit	WS (%)	0.79	2.90	6.82	5.30	5.33	3.27	2.72	7.25	6.06	4.94
nausea	WS (%)	7.94	10.14	12.12	12.12	6.67	7.84	11.56	15.22	15.15	12.96
stomach awareness	WS (%)	16.67	17.39	13.64	15.15	13.33	18.95	14.29	20.29	20.61	17.90
symptom (other)	WS (%)	0.00	5.07	0.76	4.55	4.00	5.23	2.72	4.35	3.03	1.23
MISC	WS (%)	12.86	19.78	14.32	17.50	17.20	19.41	17.55	21.30	18.73	20.56
MS medicine	WS (%)	4.76	4.35	4.55	4.55	6.00	1.96	6.12	2.17	7.27	1.85
decision making	WS (%)	11.90	15.94	14.39	21.97	14.00	20.92	14.97	19.57	24.24	25.31
concentration	WS (%)	30.16	27.54	22.73	27.27	26.00	30.07	25.85	25.36	27.88	34.57
memory	WS (%)	14.29	16.67	14.39	17.42	15.33	18.95	13.61	19.57	20.00	19.14
simple tasks	WS (%)	8.73	10.14	14.39	12.88	8.00	15.69	11.56	16.67	15.15	14.20
balance	WS (%)	15.87	25.36	21.97	28.79	19.33	32.03	22.45	33.33	26.67	33.95
carrying / moving	WS (%)	13.49	16 67	12.88	24.24	16.00	30.07	18.37	24.64	24.24	28.40
hand coordination	WS (%)	5.56	10.14	8.33	16.67	10.67	16.34	8.84	17.39	16.36	17.28
vision	WS (%)	15.87	18.84	16.67	20.45	18.00	21.57	13.61	25.36	21.82	22.22
performance (other)	WS (%)	0.79	4.35	8.33	5.30	2.67	1.31	2.72	4.35	2.42	4.32
more mistakes	(%)	4.76	10.87	13.64	9.09	14.00	9.80	4.08	13.04	14.55	14.81
longer time	(%)	19.05	17.39	13.64	25.00	26.00	23.53	20.41	26.09	21.82	22.22
not finished	(%)	7.14	2.17	4.55	4.55	10.00	5.88	2.04	6.52	5.45	9.26
abandoned	(%)	4.76	4.35	4.55	6.82	6.00	11.76	2.04	4.35	7.27	5.56
not attempt	(%)	4.76	2.17	4.55	4.55	4.00	7.84	0.00	8.70	5.45	9.26
completion (other)	(%)	0.00	0.00	4.55	4.55	0.00	0.00	2 04	0.00	0.00	0.00
cold / flu	WS (%)	17.46	21.01	19.70	22.73	19.33	27.45	18.37	28.26	23.64	26.54
air quality	WS (%)	29.37	20.29	25.76	28.79	23.33	32.68	23.81	36.96	26.06	33.33
noise	WS (%)	26.98	28.26	28.79	34.85	20.00	32.68	27.89	35.51	31.52	35.80
vibration	WS (%)	26.98	31.88	26.52	40.15	22.67	39.87	34.69	37.68	36.36	38.27
too bright	WS (%)	7.14	5.80	7.58	6.06	1.33	5.88	7.48	6.52	6.67	8.02
too dark	WS (%)	8.73	14.49	9.85	21.21	12.00	15.69	10.88	17.39	12.73	16.05
too hot	WS (%)	8.73	5.80	5.30	6.06	6.67	4.58	10.20	4.35	6.67	2.47
too cold	WS (%)	18.25	18.12	16.67	23.48	15.33	23.53	14.97	23.19	13.94	22.22
other (other)	WS (%)	1.59	1.45	0.00	0.00	0.00	0.65	0.68	0.72	0.61	2.47

Table C.1.3: Weighted Severity, Ship C, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	40.28	48.23	39.62	61.33	40.00	50.37	26.39	49.59	35.35	44.31
sleep time	WS (%)	40.97	49.65	39.62	64.00	42.00	52.59	31.25	53.66	37.37	46.24
sleep motions	WS (%)	43.06	49.65	40.25	65.33	41.33	51.85	30.56	47.97	33.33	42.69
sleep MS	WS (%)	10.42	9.93	12.58	12.00	12.67	12.59	7.64	7.32	8.08	8.81
sleep (other)	WS (%)	10.42	5.67	3.14	7.33	2.67	10.37	7.64	13.82	2.02	8.78
mental fatigue	WS (%)	35.42	35.46	37.11	48.00	39.33	42.96	31.25	43.09	42.42	36.56
physical fatigue	WS (%)	38.19	39.01	37.74	48.00	41.33	45.93	34.72	43.90	39.39	37.61
sleepy	WS (%)	45.14	50.35	47.80	54.67	48.67	50.37	38.19	56.10	46.46	48.62
headache	WS (%)	29.86	27.66	27.67	26.00	27.33	27.41	23.61	28.46	25.25	26.38
apathy	WS (%)	41.67	46.81	35.85	47.33	38.67	43.70	40.97	47.97	38.38	39.81
tension	WS (%)	27.78	29.08	20.75	28.67	28.67	33.33	29.17	35.77	25.25	26.11
vomit	WS (%)	9.72	4.96	8.18	8.67	6.67	4.44	4.17	5.69	5.05	5.42
nausea	WS (%)	16.67	12.06	16.98	15.33	13.33	11.85	9.72	13.82	11.11	12.24
stomach awareness	WS (%)	24.31	16.31	20.75	23.33	16.67	15.56	15.97	17.07	18.18	17.70
symptom (other)	WS (%)	4.17	2.13	0.63	2.00	0.67	0.74	2.78	3.25	0.00	2.49
MISC	WS (%)	18.33	19.15	21.13	23.00	16.00	16.00	13.54	15.85	20.61	18.04
MS medicine	WS (%)	6.25	4.26	5.66	6.00	8.00	0.00	4.17	2.44	6.06	4.55
decision making	WS (%)	18.75	19.15	21.38	26.00	20.67	28.15	16.67	25.20	20.20	19.97
concentration	WS (%)	26.39	21.99	32.08	36.67	28.67	31.11	26.39	35.77	24.24	28.46
memory	WS (%)	18.06	18.44	16.35	22.67	17.33	22.96	19.44	23.58	21.21	18.39
simple tasks	WS (%)	13.89	12.77	18.87	20.00	16.67	17.04	13.19	17.89	17.17	14.47
balance	WS (%)	26.39	24.82	30.82	38.67	25.33	31.85	18.75	33.33	27.27	27.21
carrying / moving	WS (%)	25.00	21.28	24.53	34.00	17.33	25.19	20.14	27.64	25.25	22.60
hand coordination	WS (%)	15.28	16.31	16.35	18.67	16.67	18.52	14.58	20.33	17.17	14.81
vision	WS (%)	19.44	17.73	18.24	20.00	17.33	20.74	13.19	21.14	19.19	19.02
performance (other)	WS (%)	1.39	2.84	4.40	2.67	4.67	5.93	1.39	4.07	3.03	3.52
more mistakes	(%)	6.25	6.38	15.09	10.00	10.00	11.11	12.50	12.20	9.09	10.59
longer time	(%)	20.83	12.77	20.75	22.00	16.00	17.78	16.67	12.20	6.06	18.96
not finished	(%)	2.08	4.26	3.77	8.00	6.00	8.89	2.08	4.88	6.06	5.45
abandoned	(%)	4.17	6.38	7.55	6.00	6.00	6.67	2.08	7.32	3.03	5.61
not attempt	(%)	4.17	6.38	1.89	8.00	4.00	8.89	4.17	4.88	3.03	5.09
completion (other)	(%)	0.00	0.00	0.00	2.00	0.00	4.44	0.00	2.44	0.00	1.05
cold / flu	WS (%)	25.00	29.08	22.64	24.00	16.00	26.67	19.44	30.89	29.29	23.55
air quality	WS (%)	27.78	27.66	25.79	30.00	28.67	25.19	25.00	37.40	25.25	28.06
noise	WS (%)	30.56	33.33	30.82	35.33	30.00	31.85	27.08	34.96	34.34	31.08
vibration	WS (%)	34.72	41.13	34.59	40.67	30.00	32.59	27.78	37.40	34.34	34.12
too bright	WS (%)	8.33	10.64	10.06	10.67	7.33	7.41	6.94	10.57	12.12	7.71
too dark	WS (%)	11.81	13.48	6.29	8.67	10.67	16.30	9.72	12.20	5.05	12.27
too hot	WS (%)	7.64	9.22	10.69	6.00	6.00	5.93	8.33	4.07	4.04	6.46
too cold	WS (%)	13.19	17.73	10.69	14.00	14.00	18.52	9.03	18.70	14.14	16.83
other (other)	WS (%)	2.78	0.71	0.63	2.67	4.00	5.93	5.56	3.25	2.02	1.88

Ave.* = average over days 1.5 through 10.5

Table C.1.4: Weighted Severity, Ship C, low MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	38.10	28.79	35.00	46.67	34.72	47.44	36.36	48.61	33.33	41.67
sleep time	WS (%)	41.27	37.88	30.00	50.00	41.67	47.44	36.36	50.00	36.36	45.24
sleep motions	WS (%)	31.75	33.33	28.33	38.33	31.94	41.03	40.91	41.67	40.91	40.48
sleep MS	WS (%)	1.59	3.03	1.67	0.00	1.39	1.28	4.55	5.56	0.00	0.00
sleep (other)	WS (%)	17.46	4.55	10.00	16.67	11.11	8.97	7.58	9.72	9.09	3.57
mental fatigue	WS (%)	25.40	22.73	16.67	26.67	26.39	29.49	24.24	31.94	27.27	38.10
physical fatigue	WS (%)	30.16	27.27	15.00	30.00	27.78	33.33	25.76	34.72	22.73	35.71
sleepy	WS (%)	49.21	34.85	35.00	40.00	40.28	41.03	34.85	40.28	34.85	48.81
headache	WS (%)	12.70	19.70	11.67	11.67	19.44	16.67	15.15	15.28	16.67	15.48
apathy	WS (%)	28.57	21.21	21.67	26.67	30.56	26.92	30.30	36.11	33.33	36.90
tension	WS (%)	11.11	16.67	11.67	13.33	11.11	19.23	16.67	26.39	18.18	22.62
vomit	WS (%)	0.00	1.52	0.00	0.00	0.00	0.00	0.00	1.39	0.00	0.00
nausea	WS (%)	4.76	6.06	1.67	0.00	0.00	1.28	3.03	4.17	1.52	2.38
stomach awareness	WS (%)	4.76	6.06	3.33	1.67	2.78	6.41	3.03	4.17	4.55	4.76
symptom (other)	WS (%)	0.00	4.55	0.00	0.00	4.17	6.41	3.03	5.56	0.00	0.00
MISC	WS (%)	8.10	13.64	3.50	8.50	6.25	10.00	5.45	7.92	7.27	14.64
MS medicine	WS (%)	4.76	9.09	5.00	0.00	4.17	0.00	9.09	0.00	4.55	0.00
decision making	WS (%)	9.52	12.12	10.00	11.67	6.94	14.10	6.06	12.50	13.64	20.24
concentration	WS (%)	23.81	22.73	20.00	16.67	19.44	28.21	18.18	20.83	18.18	29.76
memory	WS (%)	12.70	15.15	8.33	8.33	6.94	16.67	7.58	12.50	10.61	11.90
simple tasks	WS (%)	3.17	9.09	8.33	3.33	2.78	10.26	3.03	8.33	4.55	7.14
balance	WS (%)	11.11	16.67	10.00	15.00	9.72	21.79	13.64	19.44	12.12	21.43
carrying / moving	WS (%)	9.52	9.09	3.33	13.33	5.56	15.38	9.09	11.11	9.09	15.48
hand coordination	WS (%)	3.17	4.55	3.33	5.00	2.78	8.97	1.52	6.94	3.03	8.33
vision	WS (%)	14.29	15.15	11.67	10.00	12.50	15.38	3.03	18.06	13.64	15.48
performance (other)	WS (%)	1.59	4.55	3.33	3.33	2.78	1.28	3.03	4.17	3.03	2.38
more mistakes	(%)	0.00	4.55	5.00	0.00	8.33	7.69	0.00	4.17	9.09	7.14
longer time	(%)	9.52	9.09	0.00	10.00	12.50	11.54	4.55	8.33	13.64	10.71
not finished	(%)	14.29	0.00	0.00	0.00	0.00	7.69	0.00	4.17	4.55	7.14
abandoned	(%)	9.52	4.55	0.00	0.00	0.00	7.69	0.00	0.00	4.55	0.00
not attempt	(%)	4.76	0.00	0.00	0.00	4.17	0.00	0.00	8.33	4.55	10.71
completion (other)	(%)	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	19.05	15.15	18.33	21.67	15.28	24.36	12.12	16.67	13.64	23.81
air quality	WS (%)	33.33	15.15	23.33	25.00	16.67	34.62	10.61	27.78	15.15	33.33
noise	WS (%)	28.57	21.21	21.67	25.00	9.72	20.51	16.67	23.61	22.73	30.95
vibration	WS (%)	30.16	27.27	16.67	28.33	13.89	33.33	25.76	27.78	25.76	39.29
too bright	WS (%)	1.59	7.58	0.00	3.33	0.00	2.56	0.00	1.39	0.00	3.57
too dark	WS (%)	15.87	13.64	15.00	20.00	11.11	15.38	16.67	13.89	13.64	17.86
too hot	WS (%)	3.17	1.52	1.67	1.67	4.17	0.00	7.58	0.00	1.52	0.00
too cold	WS (%)	14.29	12.12	13.33	20.00	5.56	17.95	10.61	13.89	9.09	21.43
other (other)	WS (%)	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57

Table C.1.4: Weighted Severity, Ship C, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	28.57	40.00	27.78	58.33	34.67	39.13	14.49	39.39	26.32	36.81
sleep time	WS (%)	25.40	36.00	26.39	62.50	33.33	39.13	14.49	40.91	28.07	38.02
sleep motions	WS (%)	36.51	41.33	29.17	65.28	32.00	37.68	18.84	40.91	24.56	36.58
sleep MS	WS (%)	0.00	0.00	0.00	4.17	2.67	1.45	0.00	0.00	0.00	1.44
sleep (other)	WS (%)	4.76	1.33	0.00	6.94	0.00	11.59	0.00	12.12	0.00	7.13
mental fatigue	WS (%)	19.05	28.00	26.39	37.50	22.67	30.43	21.74	36.36	24.56	27.14
physical fatigue	WS (%)	20.63	30.67	23.61	36.11	29.33	36.23	24.64	36.36	22.81	28.57
sleepy	WS (%)	28.57	36.00	30.56	41.67	33.33	40.58	24.64	48.48	28.07	37.42
headache	WS (%)	9.52	13.33	9.72	11.11	9.33	11.59	14.49	15.15	8.77	13.55
apathy	WS (%)	28.57	36.00	25.00	37.50	29.33	27.54	33.33	40.91	31.58	30.63
tension	WS (%)	15.87	21.33	12.50	20.83	14.67	17.39	21.74	19.70	15.79	17.20
vomit	WS (%)	0.00	0.00	0.00	1.39	0.00	0.00	0.00	1.52	0.00	0.31
nausea	WS (%)	3.17	0.00	0.00	2.78	0.00	0.00	0.00	3.03	0.00	1.78
stomach awareness	WS (%)	6.35	1.33	1.39	1.39	4.00	1.45	5.80	1.52	3.51	3.59
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	1.33
MISC	WS (%)	6.19	6.40	5.83	10.42	5.20	5.22	3.91	4.55	7.37	7.39
MS medicine	WS (%)	4.76	0.00	4.17	0.00	8.00	0.00	4.35	0.00	10.53	3.60
decision making	WS (%)	14.29	14.67	15.28	23.61	14.67	14.49	14.49	18.18	14.04	13.71
concentration	WS (%)	19.05	14.67	23.61	30.56	21.33	13.04	15.94	22.73	10.53	20.49
memory	WS (%)	7.94	10.67	11.11	18.06	8.00	13.04	8.70	15.15	10.53	11.26
simple tasks	WS (%)	6.35	8.00	11.11	11.11	8.00	8.70	5.80	9.09	5.26	7.02
balance	WS (%)	11.11	14.67	18.06	31.94	14.67	14.49	10.14	22.73	15.79	16.03
carrying / moving	WS (%)	12.70	13.33	13.89	26.39	12.00	11.59	10.14	10.61	12.28	11.79
hand coordination	WS (%)	6.35	6.67	6.94	11.11	8.00	7.25	4.35	9.09	7.02	6.02
vision	WS (%)	11.11	8.00	12.50	15.28	12.00	13.04	10.14	12.12	10.53	12.31
performance (other)	WS (%)	1.59	4.00	4.17	1.39	1.33	4.35	1.45	3.03	0.00	2.67
more mistakes	(%)	4.76	0.00	12.50	0.00	4.00	4.35	8.70	4.55	10.53	5.02
longer time	(%)	4.76	4.00	12.50	8.33	8.00	4.35	4.35	9.09	5.26	7.92
not finished	(%)	0.00	0.00	0.00	4.17	8.00	0.00	0.00	0.00	5.26	2.91
abandoned	(%)	0.00	0.00	4.17	0.00	8.00	0.00	0.00	4.55	0.00	2.26
not attempt	(%)	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	1.92
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
cold / flu	WS (%)	14.29	18.67	18.06	25.00	12.00	20.29	17.39	22.73	17.54	18.21
air quality	WS (%)	11.11	17.33	11.11	22.22	18.67	18.84	13.04	27.27	14.04	20.45
noise	WS (%)	19.05	25.33	16.67	30.56	18.67	24.64	18.84	27.27	22.81	22.34
vibration	WS (%)	20.63	30.67	22.22	34.72	24.00	24.64	23.19	28.79	28.07	26.59
too bright	WS (%)	0.00	2.67	0.00	4.17	1.33	0.00	0.00	1.52	1.75	1.66
too dark	WS (%)	11.11	13.33	8.33	12.50	9.33	13.04	10.14	16.67	5.26	13.30
too hot	WS (%)	0.00	4.00	4.17	4.17	1.33	2.90	1.45	1.52	0.00	2.15
too cold	WS (%)	9.52	13.33	5.56	11.11	9.33	8.70	10.14	12.12	7.02	11.85
other (other)	WS (%)	0.00	0.00	0.00	4.17	6.67	7.25	8.70	3.03	1.75	2.02

Ave.* = average over days 1.5 through 10.5

Table C.1.5: Weighted Severity, Ship C, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	34.92	48.61	47.22	47.22	46.15	60.00	44.44	65.15	45.45	67.95
sleep time	WS (%)	36.51	50.00	48.61	50.00	50.00	53.33	45.68	63.64	48.48	67.95
sleep motions	WS (%)	17.46	41.67	43.06	40.28	39.74	54.67	41.98	60.61	37.37	70.51
sleep MS	WS (%)	6.35	8.33	11.11	9.72	11.54	14.67	8.64	16.67	17.17	20.51
sleep (other)	WS (%)	0.00	20.83	12.50	13.89	19.23	5.33	9.88	7.58	5.05	14.10
mental fatigue	WS (%)	34.92	33.33	33.33	44.44	33.33	38.67	41.98	54.55	38.38	51.28
physical fatigue	WS (%)	31.75	30.56	30.56	43.06	33.33	38.67	41.98	56.06	42.42	55.13
sleepy	WS (%)	46.03	54.17	55.56	54.17	51.28	57.33	51.85	69.70	56.57	67.95
headache	WS (%)	23.81	29.17	31.94	31.94	32.05	36.00	35.80	46.97	37.37	48.72
apathy	WS (%)	23.81	43.06	44.44	45.83	39.74	45.33	43.21	66.67	44.44	55.13
tension	WS (%)	17.46	29.17	25.00	31.94	26.92	32.00	33.33	37.88	27.27	41.03
vomit	WS (%)	1.59	4.17	12.50	9.72	10.26	6.67	4.94	13.64	10.10	10.26
nausea	WS (%)	11.11	13.89	20.83	22.22	12.82	14.67	18.52	27.27	24.24	24.36
stomach awareness	WS (%)	28.57	27.78	22.22	26.39	23.08	32.00	23.46	37.88	31.31	32.05
symptom (other)	WS (%)	0.00	5.56	1.39	8.33	3.85	4.00	2.47	3.03	5.05	2.56
MISC	WS (%)	17.62	25.42	23.33	25.00	27.31	29.20	27.41	35.91	26.36	26.92
MS medicine	WS (%)	4.76	0.00	4.17	8.33	7.69	4.00	3.70	4.55	9.09	3.85
decision making	WS (%)	14.29	19.44	18.06	30.56	20.51	28.00	22.22	27.27	31.31	30.77
concentration	WS (%)	36.51	31.94	25.00	36.11	32.05	32.00	32.10	30.30	34.34	39.74
memory	WS (%)	15.87	18.06	19.44	25.00	23.08	21.33	18.52	27.27	26.26	26.92
simple tasks	WS (%)	14.29	11.11	19.44	20.83	12.82	21.33	18.52	25.76	22.22	21.79
balance	WS (%)	20.63	33.33	31.94	40.28	28.21	42.67	29.63	48.48	36.36	47.44
carrying / moving	WS (%)	17.46	23.61	20.83	33.33	25.64	45.33	25.93	39.39	34.34	42.31
hand coordination	WS (%)	7.94	15.28	12.50	26.39	17.95	24.00	14.81	28.79	25.25	26.92
vision	WS (%)	17.46	22.22	20.83	29.17	23.08	28.00	22.22	33.33	27.27	29.49
performance (other)	WS (%)	0.00	4.17	12.50	6.94	2.56	1.33	2.47	4.55	2.02	6.41
more mistakes	(%)	9.52	16.67	20.83	16.67	19.23	12.00	7.41	22.73	18.18	23.08
longer time	(%)	28.57	25.00	25.00	37.50	38.46	36.00	33.33	45.45	27.27	34.62
not finished	(%)	0.00	4.17	8.33	8.33	19.23	4.00	3.70	9.09	6.06	11.54
abandoned	(%)	0.00	4.17	8.33	12.50	11.54	16.00	3.70	9.09	9.09	11.54
not attempt	(%)	4.76	4.17	8.33	8.33	3.85	16.00	0.00	9.09	6.06	7.69
completion (other)	(%)	0.00	0.00	8.33	4.17	0.00	0.00	3.70	0.00	0.00	0.00
cold / flu	WS (%)	15.87	26.39	20.83	23.61	23.08	30.67	23.46	40.91	30.30	29.49
air quality	WS (%)	25.40	25.00	27.78	31.94	29.49	30.67	34.57	46.97	33.33	33.33
noise	WS (%)	25.40	34.72	34.72	43.06	29.49	45.33	37.04	48.48	37.37	41.03
vibration	WS (%)	23.81	36.11	34.72	50.00	30.77	46.67	41.98	48.48	43.43	37.18
too bright	WS (%)	12.70	4.17	13.89	8.33	2.56	9.33	13.58	12.12	11.11	12.82
too dark	WS (%)	1.59	15.28	5.56	22.22	12.82	16.00	6.17	21.21	12.12	14.10
too hot	WS (%)	14.29	9.72	8.33	9.72	8.97	9.33	12.35	9.09	10.10	5.13
too cold	WS (%)	22.22	23.61	19.44	26.39	24.36	29.33	18.52	33.33	17.17	23.08
other (other)	WS (%)	0.00	2.78	0.00	0.00	0.00	1.33	1.23	1.52	1.01	1.28

Table C.1.5: Weighted Severity, Ship C, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	49.38	57.58	49.43	64.10	45.33	62.12	37.33	61.40	47.62	51.65
sleep time	WS (%)	53.09	65.15	50.57	65.38	50.67	66.67	46.67	68.42	50.00	54.25
sleep motions	WS (%)	48.15	59.09	49.43	65.38	50.67	66.67	41.33	56.14	45.24	48.92
sleep MS	WS (%)	18.52	21.21	22.99	19.23	22.67	24.24	14.67	15.79	19.05	15.95
sleep (other)	WS (%)	14.81	10.61	5.75	7.69	5.33	9.09	14.67	15.79	4.76	10.36
mental fatigue	WS (%)	48.15	43.94	45.98	57.69	56.00	56.06	40.00	50.88	66.67	45.77
physical fatigue	WS (%)	51.85	48.48	49.43	58.97	53.33	56.06	44.00	52.63	61.90	46.32
sleepy	WS (%)	58.02	66.67	62.07	66.67	64.00	60.61	50.67	64.91	71.43	59.45
headache	WS (%)	45.68	43.94	42.53	39.74	45.33	43.94	32.00	43.86	47.62	38.86
apathy	WS (%)	51.85	59.09	44.83	56.41	48.00	60.61	48.00	56.14	47.62	48.64
tension	WS (%)	37.04	37.88	27.59	35.90	42.67	50.00	36.00	54.39	38.10	34.82
vomit	WS (%)	17.28	10.61	14.94	15.38	13.33	9.09	8.00	10.53	11.90	10.26
nausea	WS (%)	27.16	25.76	31.03	26.92	26.67	24.24	18.67	26.32	26.19	22.26
stomach awareness	WS (%)	38.27	33.33	36.78	43.59	29.33	30.30	25.33	35.09	38.10	31.31
symptom (other)	WS (%)	7.41	4.55	1.15	3.85	1.33	1.52	5.33	5.26	0.00	3.51
MISC	WS (%)	27.78	33.64	33.79	34.62	26.80	27.27	22.40	28.95	38.57	28.33
MS medicine	WS (%)	7.41	9.09	6.90	11.54	8.00	0.00	4.00	5.26	0.00	5.39
decision making	WS (%)	22.22	24.24	26.44	28.21	26.67	42.42	18.67	33.33	28.57	25.96
concentration	WS (%)	32.10	30.30	39.08	42.31	36.00	50.00	36.00	50.88	42.86	36.30
memory	WS (%)	25.93	27.27	20.69	26.92	26.67	33.33	29.33	33.33	35.71	25.31
simple tasks	WS (%)	19.75	18.18	25.29	28.21	25.33	25.76	20.00	28.07	33.33	21.69
balance	WS (%)	38.27	36.36	41.38	44.87	36.00	50.00	26.67	45.61	42.86	37.95
carrying / moving	WS (%)	34.57	30.30	33.33	41.03	22.67	39.39	29.33	47.37	42.86	33.11
hand coordination	WS (%)	22.22	27.27	24.14	25.64	25.33	30.30	24.00	33.33	30.95	23.32
vision	WS (%)	25.93	28.79	22.99	24.36	22.67	28.79	16.00	31.58	30.95	25.53
performance (other)	WS (%)	1.23	1.52	4.60	3.85	8.00	7.58	1.33	5.26	7.14	4.39
more mistakes	(%)	7.41	13.64	17.24	19.23	16.00	18.18	16.00	21.05	7.14	15.91
longer time	(%)	33.33	22.73	27.59	34.62	24.00	31.82	28.00	15.79	7.14	29.27
not finished	(%)	3.70	9.09	6.90	11.54	4.00	18.18	4.00	10.53	7.14	7.87
abandoned	(%)	7.41	13.64	10.34	11.54	4.00	13.64	4.00	10.53	7.14	8.85
not attempt	(%)	7.41	13.64	3.45	15.38	4.00	18.18	8.00	10.53	7.14	8.21
completion (other)	(%)	0.00	0.00	0.00	3.85	0.00	9.09	0.00	5.26	0.00	1.81
cold / flu	WS (%)	33.33	40 91	26.44	23.08	20.00	33.33	21.33	40.35	45.24	28.87
air quality	WS (%)	40.74	39.39	37.93	37.18	38.67	31.82	36.00	49.12	40.48	35.25
noise	WS (%)	39.51	42.42	42.53	39.74	41.33	39.39	34.67	43.86	50.00	39.48
vibration	WS (%)	45.68	53.03	44.83	46.15	36.00	40.91	32.00	47.37	42.86	41.16
too bright	WS (%)	14.81	19.70	18.39	16.67	13.33	15.15	13.33	21.05	26.19	13.64
too dark	WS (%)	12.35	13.64	4.60	5.13	12.00	19.70	9.33	7.02	4.76	11.35
too hot	WS (%)	13.58	15.15	16.09	7.69	10.67	9.09	14.67	7.02	9.52	10.55
too cold	WS (%)	16.05	22.73	14.94	16.67	18.67	28.79	8.00	26.32	23.81	21.76
other (other)	WS (%)	4.94	1.52	1.15	1.28	1.33	4.55	2.67	3.51	2.38	1.71

Ave.* = average over days 1.5 through 10.5

Table D.1.1: Weighted Severity, Ship D, all subjects, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	18.29	26.24	22.52	29.33	17.08	33.33	27.31	35.35	28.10	41.26
sleep time	WS (%)	26.02	27.42	27.37	28.67	23.96	33.33	27.10	32.21	27.89	39.16
sleep motions	WS (%)	6.91	11.11	6.62	12.22	9.17	21.25	24.95	32.89	27.02	40.33
sleep MS	WS (%)	1.22	1.18	0.44	2.00	0.42	1.12	1.72	2.68	2.40	5.13
sleep (other)	WS (%)	15.04	18.91	11.92	17.33	8.54	14.77	12.90	11.63	5.88	8.86
mental fatigue	WS (%)	15.45	16.08	11.92	16.22	13.13	17.67	16.56	18.79	14.81	18.41
physical fatigue	WS (%)	20.73	19.62	17.00	19.56	17.08	19.24	20.22	22.37	19.61	26.11
sleepy	WS (%)	24.39	27.90	20.53	24.00	20.42	24.61	25.16	25.06	23.75	31.93
headache	WS (%)	10.98	10.64	11.70	9.56	13.96	12.08	15.05	15.21	15.69	17.02
apathy	WS (%)	8.13	7.80	7.28	10.67	10.42	10.96	13.76	13.87	13.29	14.69
tension	WS (%)	6.91	8.98	8.39	6.67	8.13	7.83	9.68	7.83	8.28	7.46
vomit	WS (%)	0.00	0.00	0.22	1.33	0.21	0.89	1.08	1.34	1.09	1.86
nausea	WS (%)	2.03	1.18	0.66	2.44	3.13	2.91	7.10	4.25	5.66	3.50
stomach awareness	WS (%)	4.07	3.07	2.87	5.11	5.83	6.49	11.61	7.38	10.89	8.86
symptom (other)	WS (%)	4.47	2.36	4.42	2.44	3.13	0.89	1.94	1.12	0.87	0.47
MISC	WS (%)	3.78	3.69	2.98	3.20	4.56	6.51	8.06	6.38	7.65	7.06
MS medicine	WS (%)	19.51	10.64	9.27	8.00	9.38	13.42	10.32	10.07	11.11	11.19
decision making	WS (%)	5.69	8.04	5.74	6.89	7.92	6.26	5.59	5.15	5.88	6.53
concentration	WS (%)	12.60	14.42	11.04	10.67	13.33	13.20	11.83	10.96	11.55	13.75
memory	WS (%)	8.13	9.69	6.40	6.67	6.46	6.94	6.24	5.15	5.01	5.83
simple tasks	WS (%)	4.47	6.38	3.31	3.78	3.96	4.47	3.23	2.91	3.05	4.20
balance	WS (%)	8.54	10.64	7.28	8.22	8.33	13.20	16.99	12.53	21 79	21.91
carrying / moving	WS (%)	5.28	6.38	2.65	4.67	3.75	7.61	9.46	7.83	13.73	12.82
hand coordination	WS (%)	4.88	4.49	2.87	3.11	3.54	4.70	4.30	4.25	5.66	5.13
vision	WS (%)	8.13	9.69	7.06	8.00	8.13	9.40	7 10	5.59	7.63	7.46
performance (other)	WS (%)	2.03	0.95	1.32	1.56	1.88	2.24	1.08	0.67	1.09	1.40
more mistakes	(%)	2.44	3.55	3.31	1.33	3.75	4.70	3.87	2 68	5.23	2.80
longer time	(%)	8.54	7.09	3.97	6.67	8.75	12.08	16.13	10.74	12.42	12.59
not finished	(%)	0.00	2.84	2.65	2.00	3.13	0 67	1.94	1.34	1.96	2.10
abandoned	(%)	0.00	2.13	1.32	1.33	2.50	2.68	4.52	2.68	5.23	4.20
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.67	1.94	0.67	2.61	0.00
completion (other)	(%)	0.00	0.00	0.66	0.00	1.25	0.67	1.29	0.67	0.65	0.00
cold / flu	WS (%)	28.46	26.48	26.49	23.56	20.63	20.58	18.71	20.13	18.08	20.75
air quality	WS (%)	34.55	36.64	35 98	32.89	31.88	34.68	34.62	34.68	34.42	34.03
noise	WS (%)	25.61	25.53	23.84	24.00	21.46	23.04	27.31	25.95	22.66	24.94
vibration	WS (%)	15.04	14.18	12.14	14.22	15.21	15.21	21.29	19.02	21.13	22.61
too bright	WS (%)	3.66	3.78	4.42	4.00	3.33	3.13	5.38	3.80	4.14	6.06
too dark	WS (%)	6.91	9.69	10.15	8.44	9.17	11.19	8.60	9.84	8.06	8.62
too hot	WS (%)	8.13	6.86	4.86	6.89	8.33	5.37	8.60	7.83	8.71	6.76
too cold	WS (%)	7.32	7.57	7.95	6.67	5.63	6.49	5.38	5.15	4.36	5.36
other (other)	WS (%)	3.25	1.65	1.99	0.67	1.46	1.57	1.94	1.57	2.61	0.47

Table D.1.1: Weighted Severity, Ship D, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

Parameter	Units	Day of Trial									
		6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	23.03	27.86	22.49	34.75	30.87	23.00	22.60	27.73	22.22	27.02
sleep time	WS (%)	21.49	28.81	26.58	30.97	31.32	24.88	24.83	32.27	23.12	28.28
sleep motions	WS (%)	23.90	23.81	21.27	33.57	27.07	18.31	14.77	12.53	11.11	19.94
sleep MS	WS (%)	1.97	2.62	1.84	3.07	2.68	2.58	0.45	0.80	2.40	1.93
sleep (other)	WS (%)	5.26	7.38	8.38	6.62	12.30	5.40	7.83	11.47	9.81	10.53
mental fatigue	WS (%)	10.53	14.52	11.66	18.91	15.21	14.55	12.30	15.20	11.71	14.93
physical fatigue	WS (%)	14.69	18.33	16.56	22.70	22.60	16.90	15.88	19.47	20.12	19.41
sleepy	WS (%)	19.96	23.10	19.84	29.31	25.06	19.72	19.46	25.87	21.32	23.76
headache	WS (%)	12.28	12.14	14.11	14.18	13.20	11.50	9.17	11.47	15.92	12.94
apathy	WS (%)	9.65	12.86	10.63	13.24	10.74	13.62	11.41	13.07	13.81	11.57
tension	WS (%)	5.92	8.33	6.95	8.51	6.71	5.87	4.92	7.47	9.01	7.57
vomit	WS (%)	1.10	1.19	2.25	2.84	2.01	1.17	1.57	1.07	0.90	1.16
nausea	WS (%)	2.41	2.14	5.11	3.78	1.79	1.17	2.01	1.60	2.10	2.89
stomach awareness	WS (%)	5.70	3.33	6.18	8.96	5.15	3.52	2.46	3.47	4.80	5.88
symptom (other)	WS (%)	0.88	1.19	2.25	1.65	2.01	0.47	1.34	0.53	1.20	1.77
MISC	WS (%)	5.26	4.79	6.75	7.23	4.83	5.21	4.36	4.56	4.05	5.31
MS medicine	WS (%)	8.55	10.00	12.27	12.06	9.40	11.27	8.72	8.80	9.91	10.73
decision making	WS (%)	5.04	4.52	5.11	6.38	6.04	5.40	4.25	5.87	6.61	5.94
concentration	WS (%)	7.02	8.33	7.77	9.46	9.17	7.75	5.59	10.13	10.51	10.48
memory	WS (%)	3.73	3.10	3.89	4.96	6.26	5.40	2.46	5.07	5.71	5.64
simple tasks	WS (%)	2.19	2.86	3.68	3.31	4.03	3.52	1.12	3.73	3.30	3.55
balance	WS (%)	13.38	11.43	14.11	15.13	15.21	9.86	7.38	11.47	10.81	12.54
carrying / moving	WS (%)	9.21	5.95	8.59	10.40	8.95	6.81	4.92	7.20	5.71	7.47
hand coordination	WS (%)	3.73	3 57	3.68	5.20	4.03	3.52	1.79	3.20	4.50	4.01
vision	WS (%)	7.02	6.19	5.32	7.09	8.05	6.34	4.70	5.87	9.01	7.25
performance (other)	WS (%)	0.88	0.95	1.64	0.71	1.12	1.41	0.67	1.07	3.00	1.35
more mistakes	(%)	1.32	1.43	0.61	0.71	3.36	1.41	4.03	0.80	1.80	2.59
longer time	(%)	4.61	3.57	5.52	11.35	7.38	5.63	3.36	6.40	5.41	8.01
not finished	(%)	0.66	1.43	1.23	0.71	2.01	2.11	0.67	0.00	0.90	1.49
abandoned	(%)	2.63	1.43	3.07	2.84	1.34	0.70	0.67	0.80	1.80	2.20
not attempt	(%)	1.32	0.00	0.00	0.00	1.34	0.70	0.67	0.00	0.90	0.57
completion (other)	(%)	0.00	0.00	0.00	2.13	0.00	0.00	0.67	0.80	0.90	0.51
cold / flu	WS (%)	17.11	16.90	17.59	18.20	17.45	18.08	17.90	16.27	16.82	20.01
air quality	WS (%)	32.24	30.95	30.06	32.15	32.21	31.69	31.32	30.67	32.13	33.04
noise	WS (%)	22.15	22.14	17.59	22.70	22.37	25.12	18.79	21.87	18.92	22.95
vibration	WS (%)	19.08	17.62	16.97	21.04	18.57	18.78	16.11	17.07	14.41	17.35
too bright	WS (%)	4.39	3.33	3.27	3.31	5.15	3.29	4.70	3.47	4.20	4.04
too dark	WS (%)	9.65	6.90	7.77	10.87	7.38	8.69	7.38	7.20	6.01	8.55
too hot	WS (%)	7.02	6.43	7.36	5.91	6.94	5.63	6.71	6.40	4.80	6.82
too cold	WS (%)	5.04	5.00	3.07	4.26	4.03	6.10	3.58	4.00	5.71	5.40
other (other)	WS (%)	1.97	1.19	2.04	0.71	2.24	1.41	2.01	1.07	5.11	1.84

Ave.* = average over days 1.5 through 10.5

Table D.1.2: Weighted Severity, Ship D, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	20.51	22.07	16.22	23.21	12.28	28.00	20.09	28.24	19.58	31.37
sleep time	WS (%)	23.08	24.41	22.52	23.63	15.79	28.89	18.72	25.46	20.42	26.47
sleep motions	WS (%)	6.84	10.33	5.41	8.02	8.33	18.22	16.89	30.09	19.17	31.86
sleep MS	WS (%)	0.85	1.41	0.00	0.42	0.00	0.44	0.46	0.46	0.42	0.00
sleep (other)	WS (%)	14.53	13.62	11.71	14.77	3.95	14.67	8.68	10.19	3.75	7.35
mental fatigue	WS (%)	10.26	12.68	8.11	11.39	7.02	13.33	11.42	11.11	9.17	10.78
physical fatigue	WS (%)	20.51	17.84	12.61	14.35	10.53	16.44	16.89	14.81	14.17	17.16
sleepy	WS (%)	23.08	24.88	15.32	19.41	14.47	23.11	20.55	18.52	18.33	22.06
headache	WS (%)	12.82	6.57	8.11	5.06	7.46	7.11	8.22	6.94	8.75	6.37
apathy	WS (%)	5.13	3.76	3.60	6.33	7.89	6.67	12.79	9.26	8.33	10.29
tension	WS (%)	5.13	4.23	4.95	2.95	3.07	4.00	4.57	2.31	4.58	3.92
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	4.27	0.94	2.70	1.27	1.32	0.00	0.00	0.46	0.83	0.00
MISC	WS (%)	1.79	0.56	0.68	0.89	0.79	1.60	1.64	1.11	2.00	1.18
MS medicine	WS (%)	10.26	2.82	1.35	2.53	2.63	8.00	2.74	4.17	6.25	4.41
decision making	WS (%)	5.13	6.10	5.41	4.22	7.02	4.89	4.11	3.24	3.75	3.92
concentration	WS (%)	10.26	8.92	7.66	7.17	10.53	10.22	8.68	6.48	8.33	7.35
memory	WS (%)	6.84	5.16	4.95	3.38	5.26	3.11	4.11	3.24	2.92	3.43
simple tasks	WS (%)	5.13	2.82	2.70	1.27	3.51	1.78	1.83	1.85	1.67	0.98
balance	WS (%)	7.69	3.76	3.60	4.22	5.26	8.00	11.87	7.41	16.25	13.24
carrying / moving	WS (%)	6.84	1.41	2.25	1.69	1.32	4.44	5.94	4.63	9.58	7.35
hand coordination	WS (%)	5.13	1.41	2.25	0.42	1.32	1.78	3.20	1.39	2.50	2.45
vision	WS (%)	5.98	4.23	6.76	2.53	5.70	7.56	6.39	4.63	5.83	4.90
performance (other)	WS (%)	4.27	0.47	1.80	0.42	1.75	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	5.13	1.41	2.70	0.00	0.00	1.33	2.74	2.78	5.00	0.00
longer time	(%)	7.69	2.82	1.35	6.33	3.95	6.67	9.59	5.56	5.00	4.41
not finished	(%)	0.00	2.82	2.70	0.00	2.63	1.33	1.37	2.78	0.00	0.00
abandoned	(%)	0.00	4.23	1.35	1.27	2.63	2.67	2.74	2.78	2.50	2.94
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	1.33	0.00	1.39	0.00	0.00
completion (other)	(%)	0.00	0.00	1.35	0.00	2.63	1.33	1.37	1.39	0.00	0.00
cold / flu	WS (%)	24.79	16.43	18.92	15.61	11.40	12.00	10.96	10.19	11.25	12.75
air quality	WS (%)	37.61	36.15	33.33	32.07	30.70	34.22	35.62	31.94	32.92	32.35
noise	WS (%)	24.79	22.07	22.07	21.52	21.93	20.89	24.66	21.76	17.92	19.61
vibration	WS (%)	12.82	9.39	8.11	13.92	12.28	12.44	17.81	14.35	15.83	19.12
too bright	WS (%)	4.27	3.76	2.70	3.38	3.07	2.22	5.48	3.24	4.17	6.37
too dark	WS (%)	5.13	7.51	4.05	4.22	3.95	5.78	5.94	2.78	2.50	3.43
too hot	WS (%)	9.40	5.63	3.60	4.64	3.95	3.11	5.94	3.70	4.17	4.90
too cold	WS (%)	5.98	6.10	3.15	4.64	0.88	3.11	5.48	4.17	4.17	4.41
other (other)	WS (%)	2.56	0.47	1.35	0.00	1.32	1.33	2.74	0.46	2.50	0.00

Table D.1.2: Weighted Severity, Ship D, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	15.45	25.11	15.42	35.24	21.54	23.74	14.40	25.14	14.37	21.68
sleep time	WS (%)	13.01	26.03	20.42	30.00	21.54	25.76	17.70	29.51	18.39	22.72
sleep motions	WS (%)	17.07	18.72	14.58	30.48	19.11	17.68	9.47	15.30	9.20	16.15
sleep MS	WS (%)	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.55	0.00	0.29
sleep (other)	WS (%)	2.03	7.31	4.58	4.76	7.72	3.54	4.53	8.20	6.32	8.01
mental fatigue	WS (%)	6.91	11.42	7.50	14.29	9.76	10.61	8.64	12.02	9.20	10.29
physical fatigue	WS (%)	10.57	15.98	13.33	18.10	17.07	13.13	11.11	15.85	13.22	14.93
sleepy	WS (%)	14.63	18.26	14.58	23.33	18.29	15.15	14.40	22.40	14.37	18.69
headache	WS (%)	8.13	6.39	5.83	6.19	8.54	8.08	4.53	4.92	12.07	7.48
apathy	WS (%)	8.13	8.68	6.25	8.57	6.50	10.10	7.41	10.93	9.77	7.92
tension	WS (%)	3.66	5.48	2.50	4.29	2.03	3.54	2.47	4.92	7.47	4.00
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.81	0.46	2.08	0.00	1.22	0.00	1.23	0.00	2.30	1.05
MISC	WS (%)	1.10	0.96	0.88	1.00	0.85	1.21	0.86	0.82	1.03	1.10
MS medicine	WS (%)	2.44	4.11	5.00	5.71	2.44	4.55	2.47	3.28	1.72	4.05
decision making	WS (%)	3.66	3.65	3.33	4.29	5.28	6.06	4.53	3.83	6.90	4.70
concentration	WS (%)	5.28	6.85	5.00	7.62	6.91	7.07	4.94	9.84	8.62	7.78
memory	WS (%)	3.25	3.65	2.50	4.29	5.69	5.56	2.47	3.28	5.75	4.15
simple tasks	WS (%)	0.81	1.37	2.08	2.38	1.63	3.03	0.82	2.19	2.87	2.14
balance	WS (%)	8.54	10.96	10.00	13.33	12.60	9.09	4.53	6.56	5.75	8.56
carrying / moving	WS (%)	6.50	3.20	5.83	8.57	6.91	6.57	3.29	3.83	4.60	4.99
hand coordination	WS (%)	2.44	1.83	1.67	3.81	2.85	2.53	0.82	1.64	3.45	2.26
vision	WS (%)	4.88	3.20	2.92	5.24	4.47	7.58	1.65	3.28	8.05	5.04
performance (other)	WS (%)	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00	2.30	0.62
more mistakes	(%)	0.00	1.37	0.00	0.00	6.10	0.00	6.17	0.00	3.45	2.01
longer time	(%)	1.22	1.37	1.25	5.71	6.10	4.55	3.70	4.92	6.90	4.69
not finished	(%)	0.00	1.37	0.00	0.00	1.22	1.52	1.23	0.00	1.72	1.09
abandoned	(%)	2.44	1.37	0.00	1.43	1.22	0.00	1.23	1.64	1.72	1.80
not attempt	(%)	1.22	0.00	0.00	0.00	2.44	0.00	1.23	0.00	1.72	0.49
completion (other)	(%)	0.00	0.00	0.00	1.43	0.00	0.00	1.23	0.00	1.72	0.66
cold / flu	WS (%)	11.79	11.42	12.50	12.38	12.60	13.13	12.35	10.38	11.49	13.28
air quality	WS (%)	30.08	29.22	29.58	33.33	31.30	33.33	30.86	34.43	32.18	32.70
noise	WS (%)	19.92	18.72	14.58	19.05	20.73	22.73	16.46	19.67	17.82	20.36
vibration	WS (%)	15.45	14.16	12.50	19.05	16.26	18.18	13.17	17.49	13.79	14.53
too bright	WS (%)	4.07	3.65	2.50	4.76	4.88	4.04	4.53	3.83	4.02	3.94
too dark	WS (%)	4.88	2.74	4.58	4.29	4.07	5.05	4.12	2.73	4.02	4.30
too hot	WS (%)	4.47	4.57	5.42	6.67	3.66	4.04	4.12	4.37	2.87	4.70
too cold	WS (%)	3.66	2.28	2.50	2.86	2.85	5.05	2.88	2.73	4.60	3.76
other (other)	WS (%)	0.41	0.91	2.08	0.48	2.03	1.01	2.88	1.09	3.45	1.43

Ave.* = average over days 1.5 through 10.5

Table D.1.3: Weighted Severity, Ship D, any MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	16.28	30.48	28.57	36.15	21.43	38.74	33.74	41.99	37.44	50.22
sleep time	WS (%)	28.68	30.48	32.03	34.27	31.35	37.84	34.55	38.53	36.07	50.67
sleep motions	WS (%)	6.98	11.90	7.79	16.90	9.92	24.32	32.11	35.50	35.62	48.00
sleep MS	WS (%)	1.55	0.95	0.87	3.76	0.79	1.80	2.85	4.76	4.57	9.78
sleep (other)	WS (%)	15.50	24.29	12.12	20.19	12.70	14.86	16.67	12.99	8.22	10.22
mental fatigue	WS (%)	20.16	19.52	15.58	21.60	18.65	22.07	21.14	25.97	21.00	25.33
physical fatigue	WS (%)	20.93	21.43	21.21	25.35	23.02	22.07	23.17	29.44	25.57	34.22
sleepy	WS (%)	25.58	30.95	25.54	29.11	25.79	26.13	29.27	31.17	29.68	40.89
headache	WS (%)	9.30	14.76	15.15	14.55	19.84	17.12	21.14	22.94	23.29	26.67
apathy	WS (%)	10.85	11.90	10.82	15.49	12.70	15.32	14.63	18.18	18.72	18.67
tension	WS (%)	8.53	13.81	11.69	10.80	12.70	11.71	14.23	12.99	12.33	10.67
vomit	WS (%)	0.00	0.00	0.43	2.82	0.40	1.80	2.03	2.60	2.28	3.56
nausea	WS (%)	3.88	2.38	1.30	5.16	5.95	5.86	13.41	8.23	11.87	6.67
stomach awareness	WS (%)	7.75	6.19	5.63	10.80	11.11	13.06	21.95	14.29	22.83	16.89
symptom (other)	WS (%)	4.65	3.81	6.06	3.76	4.76	1.80	3.66	1.73	0.91	0.89
MISC	WS (%)	5.58	6.86	5.19	5.77	7.98	11.49	13.78	11.30	13.84	12.40
MS medicine	WS (%)	27.91	18.57	16.88	14.08	15.48	18.92	17.07	15.58	16 44	17.33
decision making	WS (%)	6.20	10.00	6.06	9.86	8.73	7.66	6.91	6.93	8.22	8.89
concentration	WS (%)	14 73	20.00	14.29	14.55	15.87	16.22	14.63	15.15	15.07	19.56
memory	WS (%)	9.30	14.29	7.79	10.33	7.54	10.81	8.13	6.93	7.31	8.00
simple tasks	WS (%)	3.88	10.00	3.90	6.57	4.37	7.21	4.47	3.90	4.57	7.11
balance	WS (%)	9.30	17.62	10.82	12.68	11.11	18.47	21.54	17.32	27.85	29.78
carrying / moving	WS (%)	3.88	11.43	3.03	7.98	5.95	10.81	12.60	10.82	18.26	17.78
hand coordination	WS (%)	4.65	7.62	3.46	6.10	5.56	7.66	5.28	6.93	9.13	7.56
vision	WS (%)	10.08	15.24	7.36	14.08	10.32	11.26	7.72	6.49	9.59	9.78
performance (other)	WS (%)	0.00	1.43	0.87	2.82	1.98	4.50	2.03	1.30	2.28	2.67
more mistakes	(%)	0.00	5.71	3.90	2.82	7.14	8.11	4.88	2.60	5.48	5.33
longer time	(%)	9.30	11.43	6.49	7.04	13.10	17.57	21.95	15.58	20.55	20.00
not finished	(%)	0.00	2.86	2.60	4.23	3.57	0.00	2.44	0.00	4.11	4.00
abandoned	(%)	0.00	0.00	1.30	1.41	2.38	2.70	6.10	2.60	8.22	5.33
not attempt	(%)	0 00	0.00	0.00	0.00	0.00	0.00	3.66	0.00	5.48	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.00	1.37	0.00
cold / flu	WS (%)	31.78	36.67	33.77	32.39	28.97	29.28	25.61	29.44	25.57	28.00
air quality	WS (%)	31.78	37.14	38.53	33.80	32.94	35.14	33.74	37.23	36.07	35.56
noise	WS (%)	26.36	29 05	25.54	26.76	21.03	25.23	29.67	29.87	27.85	29.78
vibration	WS (%)	17.05	19.05	16.02	14.55	17.86	18.02	24.39	23.38	26.94	25.78
too bright	WS (%)	3.10	3.81	6.06	4.69	3.57	4.05	5.28	4.33	4.11	5.78
too dark	WS (%)	8.53	11.90	16.02	13.15	13.89	16.67	10.98	16.45	14.16	13.33
too hot	WS (%)	6.98	8.10	6.06	9.39	12.30	7.66	10.98	11.69	13.70	8.44
too cold	WS (%)	8.53	9.05	12.55	8.92	9.92	9.91	5.28	6.06	4.57	6.22
other (other)	WS (%)	3.88	2.86	2.60	1.41	1.59	1.80	1.22	2.60	2.74	0.89

Table D.1.3: Weighted Severity, Ship D, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	31.90	30.85	29.32	34.27	42.29	22.37	32.35	30.21	30.82	32.60
sleep time	WS (%)	31.43	31.84	32.53	31.92	43.28	24.12	33.33	34.90	28.30	34.01
sleep motions	WS (%)	31.90	29.35	27.71	36.62	36.82	18.86	21.08	9.90	13.21	23.92
sleep MS	WS (%)	4.29	5.47	3.21	6.10	5.97	4.82	0.98	1.04	5.03	3.61
sleep (other)	WS (%)	9.05	7.46	12.05	8.45	17.91	7.02	11.76	14.58	13.21	13.12
mental fatigue	WS (%)	14.76	17.91	15.66	23.47	21.89	17.98	16.67	18.23	14.47	19.58
physical fatigue	WS (%)	19.52	20.90	19.68	27.23	29.35	20.18	21.57	22.92	27.67	23.97
sleepy	WS (%)	26.19	28.36	24.90	35.21	33.33	23.68	25.49	29.17	28.93	28.91
headache	WS (%)	17.14	18.41	22.09	22.07	18.91	14.47	14.71	17.71	20.13	18.44
apathy	WS (%)	11.43	17.41	14.86	17.84	15.92	16.67	16.18	15.10	18.24	15.31
tension	WS (%)	8.57	11.44	11.24	12.68	12.44	7.89	7.84	9.90	10.69	11.17
vomit	WS (%)	2.38	2.49	4.42	5.63	4.48	2.19	3.43	2.08	1.89	2.36
nausea	WS (%)	5.24	4.48	10.04	7.51	3.98	2.19	4.41	3.13	4.40	5.79
stomach awareness	WS (%)	12.38	6.97	16.06	17.84	11.44	6.58	5.39	6.77	10.06	11.79
symptom (other)	WS (%)	0.95	1.99	2.41	3.29	2.99	0.88	1.47	1.04	0.00	2.48
MISC	WS (%)	10.14	8.96	12.41	13.38	9.70	8.68	8.53	8.13	7.36	9.55
MS medicine	WS (%)	15.71	16.42	19.28	18.31	17.91	17.11	16.18	14.06	18.87	17.48
decision making	WS (%)	6.67	5.47	6.83	8.45	6.97	4.82	3.92	7.81	6.29	7.19
concentration	WS (%)	9.05	9.95	10.44	11.27	11.94	8.33	6.37	10.42	12.58	13.18
memory	WS (%)	4.29	2.49	5.22	5.63	6.97	5.26	2.45	6.77	5.66	7.11
simple tasks	WS (%)	3.81	4.48	5.22	4.23	6.97	3.95	1.47	5.21	3.77	5.00
balance	WS (%)	19.05	11.94	18.07	16.90	18.41	10.53	10.78	16.15	16.35	16.56
carrying / moving	WS (%)	12.38	8.96	11.24	12.21	11.44	7.02	6.86	10.42	6.92	10.00
hand coordination	WS (%)	5.24	5.47	5.62	6.57	5.47	4.39	2.94	4.69	5.66	5.79
vision	WS (%)	9.52	9.45	7.63	8.92	12.44	5.26	8.33	8.33	10.06	9.57
performance (other)	WS (%)	1.90	1.99	2.41	1.41	2.49	2.63	1.47	2.08	3.77	2.11
more mistakes	(%)	2.86	1.49	1.20	1.41	0.00	2.63	1.47	1.56	0.00	3.08
longer time	(%)	8.57	5.97	9.64	16.90	8.96	6.58	2.94	7.81	3.77	11.27
not finished	(%)	1.43	1.49	2.41	1.41	2.99	2.63	0.00	0.00	0.00	1.90
abandoned	(%)	2.86	1.49	6.02	4.23	1.49	1.32	0.00	0.00	1.89	2.60
not attempt	(%)	1.43	0.00	0.00	0.00	0.00	1.32	0.00	0.00	0.00	0.63
completion (other)	(%)	0.00	0.00	0.00	2.82	0.00	0.00	0.00	1.56	0.00	0.37
cold / flu	WS (%)	23.33	22.89	22.49	23.94	23.38	22.37	24.51	21.88	22.64	26.78
air quality	WS (%)	34.76	32.84	30.52	30.99	33.33	30.26	31.86	27.08	32.08	33.46
noise	WS (%)	24.76	25.87	20.48	26.29	24.38	27.19	21.57	23.96	20.13	25.57
vibration	WS (%)	23.33	21.39	21.29	23.00	21.39	19.30	19.61	16.67	15.09	20.22
too bright	WS (%)	4.76	2.99	4.02	1.88	5.47	2.63	4.90	3.13	4.40	4.16
too dark	WS (%)	15.24	11.44	10.84	17.37	11.44	11.84	11.27	11.46	8.18	12.85
too hot	WS (%)	10.00	8.46	9.24	5.16	10.95	7.02	9.80	8.33	6.92	9.01
too cold	WS (%)	6.67	7.96	3.61	5.63	5.47	7.02	4.41	5.21	6.92	7.05
other (other)	WS (%)	3.81	1.49	2.01	0.94	2.49	1.75	0.98	1.04	6.92	2.26

Ave.* = average over days 1.5 through 10.5

Table D.1.4: Weighted Severity, Ship D, low MS group, days 1.5 to 6.0 (page 1 of 2)

Parameter	Units	Day of Trial									
		1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	12.28	24.07	22.22	29.91	12.88	39.47	24.81	40.17	27.19	46.83
sleep time	WS (%)	28.07	28.70	26.50	29.91	23.48	40.35	27.13	38.46	29.82	50 79
sleep motions	WS (%)	7.02	6.48	5.98	3.42	6.82	21 93	21.71	29.06	22.81	42.06
sleep MS	WS (%)	3.51	0.00	0.85	0.00	0.00	0.88	0.78	2.56	0.00	1.59
sleep (other)	WS (%)	15.79	21.30	7.69	19.66	6.82	17.54	13.18	9.40	4.39	7.14
mental fatigue	WS (%)	14.04	18.52	11.97	17.09	10.61	21.05	16.28	23.08	11.40	23.02
physical fatigue	WS (%)	15.79	14.81	17.95	18.80	12.12	17.54	18.60	27.35	14.04	26.98
sleepy	WS (%)	22.81	30.56	18.80	23.08	16.67	28.95	25.58	32.48	19.30	37.30
headache	WS (%)	5.26	11.11	11.11	10.26	9.85	13.16	14.73	17.95	14.04	21.43
apathy	WS (%)	10.53	8.33	9.40	12.82	9.09	13.16	11.63	20.51	13.16	16.67
tension	WS (%)	3.51	12.96	11.11	6.84	8.33	7.89	11.63	9.40	4.39	4.76
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	3.51	0.00	0.00	0.00	1.52	0.88	5.43	1.71	2.63	0.79
stomach awareness	WS (%)	7.02	4.63	3.42	1.71	5.30	6.14	10.85	5.13	7.02	7.94
symptom (other)	WS (%)	5.26	3.70	3.42	3.42	3.03	3.51	2.33	0.85	0.00	0.00
MISC	WS (%)	3.16	2.22	4.87	3.08	2.73	5.26	4.65	4.62	5.00	3.57
MS medicine	WS (%)	0.00	11.11	12.82	7.69	4.55	10.53	6.98	7.69	5.26	7.14
decision making	WS (%)	3.51	6.48	5.98	5.13	5.30	2.63	3.88	4.27	5.26	4.76
concentration	WS (%)	8.77	17.59	8.55	11.11	9.85	9.65	8.53	10.26	9.65	10.32
memory	WS (%)	1.75	9.26	5.98	5.13	2.27	6.14	6.98	5.98	5.26	3.17
simple tasks	WS (%)	3.51	4.63	1.71	2.56	2.27	2.63	3.88	2.56	1.75	2.38
balance	WS (%)	3.51	6.48	6.84	3.42	6.06	7.89	13.18	7.69	15.79	16.67
carrying / moving	WS (%)	1.75	1.85	2.56	1.71	2.27	2.63	6.20	2.56	8.77	8.73
hand coordination	WS (%)	0.00	2.78	1.71	0.00	0.76	0.00	2.33	1.71	2 63	1.59
vision	WS (%)	1.75	9.26	4.27	7.69	4.55	5.26	4.65	4.27	5.26	4.76
performance (other)	WS (%)	0.00	0.00	0.00	2.56	0.00	1.75	3.88	0.85	0.00	0.00
more mistakes	(%)	0.00	8.33	7.69	0.00	0.00	5.26	4.65	0.00	2.63	0 00
longer time	(%)	0.00	8.33	2.56	2.56	4.55	7.89	16.28	2.56	7.89	9.52
not finished	(%)	0.00	0.00	2.56	5.13	0.00	0.00	0.00	0.00	0 00	2.38
abandoned	(%)	0.00	0.00	2.56	2.56	0.00	0.00	0.00	0.00	5.26	2.38
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	2.33	0.00	7.89	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0 00	0.00
cold / flu	WS (%)	19.30	23.15	21.37	23.08	18.18	19.30	19.38	21.37	14.91	17.46
air quality	WS (%)	22.81	25.93	29.91	23.08	24.24	25.44	20.16	28.21	25.44	26.98
noise	WS (%)	15.79	14.81	19.66	17.95	12.88	18.42	18.60	18.80	18.42	16.67
vibration	WS (%)	12.28	11.11	11.97	9.40	8.33	11.40	13.95	14.53	18.42	12 70
too bright	WS (%)	5.26	1.85	5.13	2.56	3.79	1.75	5.43	2.56	3.51	2.38
too dark	WS (%)	7.02	8.33	6.84	8.55	9.09	9.65	6.20	13.68	5.26	10.32
too hot	WS (%)	7.02	4.63	4.27	2.56	4.55	2.63	6.20	4.27	5.26	3.97
too cold	WS (%)	3.51	11.11	10.26	7.69	9.09	7.02	3.10	5.13	4.39	4.76
other (other)	WS (%)	8.77	5.56	0.85	1.71	1.52	3.51	2.33	3.42	0.00	0.00

Table D.1.4: Weighted Severity, Ship D, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	25.71	29.73	25.58	25.00	35.35	13.82	20.95	28.95	27.27	26.96
sleep time	WS (%)	25.71	30.63	24.03	26.85	39.39	17.89	24.76	34.21	26.26	30.16
sleep motions	WS (%)	26.67	24.32	25.58	27.78	28.28	8.94	11.43	7.02	9.09	17.71
sleep MS	WS (%)	0.00	0.90	0.78	0.93	2.02	0.00	0.00	0.00	3.03	0.94
sleep (other)	WS (%)	0.00	4.50	4.65	5.56	14.14	3.25	5.71	18.42	13.13	10.12
mental fatigue	WS (%)	8.57	13.51	8.53	14.81	14.14	12.20	9.52	14.04	11.11	14.39
physical fatigue	WS (%)	13.33	17.12	11.63	16.67	19.19	14.63	8.57	18.42	20.20	17.04
sleepy	WS (%)	19.05	24.32	21.71	28.70	25.25	17.89	16.19	24.56	23.23	24.02
headache	WS (%)	11.43	9.91	13.95	13.89	10.10	8.94	5.71	15.79	18.18	12.46
apathy	WS (%)	11.43	17.12	11.63	14.81	13.13	13.82	9.52	8.77	12.12	12.51
tension	WS (%)	5.71	9.01	5.43	6.48	6.06	4.07	3.81	7.02	8.08	7.18
vomit	WS (%)	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.05
nausea	WS (%)	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.00	1.01	0.97
stomach awareness	WS (%)	4.76	0.00	3.10	7.41	0.00	0.00	0.00	0.00	3.03	4.08
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
MISC	WS (%)	3.71	2.16	3.72	3.89	2.42	1.22	2.29	1.84	2.12	3.29
MS medicine	WS (%)	5.71	5.41	6.98	2.78	9.09	4.88	8.57	5.26	6.06	6.76
decision making	WS (%)	3.81	3.60	2.33	1.85	3.03	0.00	1.90	2.63	1.01	3.55
concentration	WS (%)	4.76	7.21	5.43	3.70	7.07	2.44	1.90	6.14	7.07	7.89
memory	WS (%)	0.95	0.00	2.33	0.93	4.04	1.63	0.95	1.75	0.00	3.40
simple tasks	WS (%)	0.95	1.80	3.10	0.93	2.02	0.81	0.95	0.00	0.00	2.02
balance	WS (%)	13.33	4.50	10.08	5.56	8.08	2.44	3.81	8.77	6.06	7.90
carrying / moving	WS (%)	9.52	1.80	3.88	3.70	4.04	0.81	2.86	3.51	2.02	3.75
hand coordination	WS (%)	2.86	0.90	0.78	0.93	1.01	0.00	0.00	0.00	1.01	1.10
vision	WS (%)	3.81	4.50	4.65	2.78	6.06	1.63	1.90	1.75	2.02	4.26
performance (other)	WS (%)	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.53
more mistakes	(%)	0.00	2.70	0.00	0.00	0.00	2.44	0.00	0.00	0.00	1.77
longer time	(%)	8.57	2.70	2.33	11.11	6.06	0.00	0.00	2.63	0.00	5.03
not finished	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67
not attempt	(%)	2.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	12.38	9.91	14.73	12.96	15.15	14.63	20.00	21.93	18.18	17.76
air quality	WS (%)	18.10	26.13	17.05	18.52	19.19	20.33	21.90	21.05	16.16	22.66
noise	WS (%)	16.19	15.32	10.85	14.81	14.14	15.45	10.48	17.54	14.14	15.84
vibration	WS (%)	14.29	12.61	11.63	12.96	11.11	12.20	10.48	10.53	10.10	12.11
too bright	WS (%)	2.86	2.70	5.43	0.93	5.05	0.00	3.81	1.75	3.03	3.15
too dark	WS (%)	5.71	7.21	4.65	9.26	5.05	6.50	2.86	6.14	5.05	7.23
too hot	WS (%)	2.86	5.41	3.88	1.85	6.06	1.63	3.81	6.14	4.04	4.27
too cold	WS (%)	4.76	4.50	1.55	3.70	3.03	5.69	0.00	1.75	5.05	5.06
other (other)	WS (%)	0.00	1.80	0.00	0.00	1.01	0.00	0.95	0.88	1.01	1.75

Ave.* = average over days 1.5 through 10.5

Table D.1.5: Weighted Severity, Ship D, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	19.44	37.25	35.09	43.75	30.83	37.96	43.59	43.86	48.57	54.55
sleep time	WS (%)	29.17	32.35	37.72	39.58	40.00	35.19	42.74	38.60	42.86	50.51
sleep motions	WS (%)	6.94	17.65	9.65	33.33	13.33	26.85	43.59	42.11	49.52	55.56
sleep MS	WS (%)	0.00	1.96	0.88	8.33	1.67	2.78	5.13	7.02	9.52	20.20
sleep (other)	WS (%)	15.28	27.45	16.67	20.83	19.17	12.04	20.51	16.67	12.38	14.14
mental fatigue	WS (%)	25.00	20.59	19.30	27.08	27.50	23.15	26.50	28.95	31.43	28.28
physical fatigue	WS (%)	25.00	28.43	24.56	33.33	35.00	26.85	28.21	31.58	38.10	43.43
sleepy	WS (%)	27.78	31.37	32.46	36.46	35.83	23.15	33.33	29.82	40.95	45.45
headache	WS (%)	12.50	18.63	19.30	19.79	30.83	21.30	28.21	28.07	33.33	33.33
apathy	WS (%)	11.11	15.69	12.28	18.75	16.67	17.59	17.95	15.79	24.76	21.21
tension	WS (%)	12.50	14.71	12.28	15.63	17.50	15.74	17.09	16.67	20.95	18.18
vomit	WS (%)	0.00	0.00	0.88	6.25	0.83	3.70	4.27	5.26	4.76	8.08
nausea	WS (%)	4.17	4.90	2.63	11.46	10.83	11.11	22.22	14.91	21.90	14.14
stomach awareness	WS (%)	8.33	7.84	7.89	21.88	17.50	20.37	34.19	23.68	40.00	28.28
symptom (other)	WS (%)	4.17	3.92	8.77	4.17	6.67	0.00	5.13	2.63	1.90	2.02
MISC	WS (%)	7.50	11.76	5.53	9.06	13.75	18.06	23.85	18.16	23.43	23.64
MS medicine	WS (%)	50.00	26.47	21.05	21.88	27.50	27.78	28.21	23.68	28.57	30.30
decision making	WS (%)	8.33	13.73	6.14	15.63	12.50	12.96	10.26	9.65	11.43	14.14
concentration	WS (%)	19.44	22.55	20.18	18.75	22.50	23.15	21.37	20.18	20.95	31.31
memory	WS (%)	15.28	19.61	9.65	16.67	13.33	15.74	9.40	7.89	9.52	14.14
simple tasks	WS (%)	4.17	15.69	6.14	11.46	6.67	12.04	5.13	5.26	7.62	13.13
balance	WS (%)	13.89	29.41	14.91	23.96	16.67	29.63	30.77	27.19	40.95	46.46
carrying / moving	WS (%)	5.56	21.57	3.51	15.63	10.00	19.44	19.66	19.30	28.57	29.29
hand coordination	WS (%)	8.33	12.75	5.26	13.54	10.83	15.74	8.55	12.28	16.19	15.15
vision	WS (%)	16.67	21.57	10.53	21.88	16.67	17.59	11.11	8.77	14.29	16.16
performance (other)	WS (%)	0.00	2.94	1.75	3.13	4.17	7.41	0.00	1.75	4.76	6.06
more mistakes	(%)	0.00	2.94	0.00	6.25	15.00	11.11	5.13	5.26	8.57	12.12
longer time	(%)	16.67	14.71	10.53	12.50	22.50	27.78	28.21	28.95	34.29	33.33
not finished	(%)	0.00	5.88	2.63	3.13	7.50	0.00	5.13	0.00	8.57	6.06
abandoned	(%)	0.00	0.00	0.00	0.00	5.00	5.56	12.82	5.26	11.43	9.09
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	5.13	0.00	2.86	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	2.56	0.00	2.86	0.00
cold / flu	WS (%)	41.67	50.98	46.49	43.75	40.83	39.81	32.48	37.72	37.14	41.41
air quality	WS (%)	38.89	49.02	47.37	46.88	42.50	45.37	48.72	46.49	47.62	46.46
noise	WS (%)	34.72	44.12	31.58	37.50	30.00	32.41	41.88	41.23	38.10	46.46
vibration	WS (%)	20.83	27.45	20.18	20.83	28.33	25.00	35.90	32.46	36.19	42.42
too bright	WS (%)	1.39	5.88	7.02	7.29	3.33	6.48	5.13	6.14	4.76	10.10
too dark	WS (%)	9.72	15.69	25.44	18.75	19.17	24.07	16.24	19.30	23.81	17.17
too hot	WS (%)	6.94	11.76	7.89	17.71	20.83	12.96	16.24	19.30	22.86	14.14
too cold	WS (%)	12.50	6.86	14.91	10.42	10.83	12.96	7.69	7.02	4.76	8.08
other (other)	WS (%)	0.00	0.00	4.39	1.04	1.67	0.00	0.00	1.75	5.71	2.02

Table D.1.5: Weighted Severity, Ship D, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	38.10	32.22	33.33	43.81	49.02	32.38	44.44	32.05	36.67	38.79
sleep time	WS (%)	37.14	33.33	41.67	37.14	47.06	31.43	42.42	35.90	31.67	38.23
sleep motions	WS (%)	37.14	35.56	30.00	45.71	45.10	30.48	31.31	14.10	20.00	30.94
sleep MS	WS (%)	8.57	11.11	5.83	11.43	9.80	10.48	2.02	2.56	8.33	6.72
sleep (other)	WS (%)	18.10	11.11	20.00	11.43	21.57	11.43	18.18	8.97	13.33	16.28
mental fatigue	WS (%)	20.95	23.33	23.33	32.38	29.41	24.76	24.24	24.36	20.00	25.29
physical fatigue	WS (%)	25.71	25.56	28.33	38.10	39.22	26.67	35.35	29.49	40.00	31.73
sleepy	WS (%)	33.33	33.33	28.33	41.90	41.18	30.48	35.35	35.90	38.33	34.46
headache	WS (%)	22.86	28.89	30.83	30.48	27.45	20.95	24.24	20.51	23.33	24.99
apathy	WS (%)	11.43	17.78	18.33	20.95	18.63	20.00	23.23	24.36	28.33	18.68
tension	WS (%)	11.43	14.44	17.50	19.05	18.63	12.38	12.12	14.10	15.00	15.57
vomit	WS (%)	4.76	5.56	9.17	10.48	8.82	4.76	7.07	5.13	5.00	4.99
nausea	WS (%)	10.48	10.00	20.83	14.29	7.84	4.76	9.09	7.69	10.00	11.22
stomach awareness	WS (%)	20.00	15.56	30.00	28.57	22.55	14.29	11.11	16.67	21.67	20.55
symptom (other)	WS (%)	1.90	4.44	5.00	6.67	5.88	1.90	3.03	2.56	0.00	3.73
MISC	WS (%)	16.57	17.33	21.75	23.14	16.76	17.43	15.15	17.31	16.00	16.64
MS medicine	WS (%)	25.71	30.00	32.50	34.29	26.47	31.43	24.24	26.92	40.00	29.32
decision making	WS (%)	9.52	7.78	11.67	15.24	10.78	10.48	6.06	15.38	15.00	11.40
concentration	WS (%)	13.33	13.33	15.83	19.05	16.67	15.24	11.11	16.67	21.67	19.12
memory	WS (%)	7.62	5.56	8.33	10.48	9.80	9.52	4.04	14.10	15.00	11.35
simple tasks	WS (%)	6.67	7.78	7.50	7.62	11.76	7.62	2.02	12.82	10.00	8.48
balance	WS (%)	24.76	21.11	26.67	28.57	28.43	20.00	18.18	26.92	33.33	26.41
carrying / moving	WS (%)	15.24	17.78	19.17	20.95	18.63	14.29	11.11	20.51	15.00	17.12
hand coordination	WS (%)	7.62	11.11	10.83	12.38	9.80	9.52	6.06	11.54	13.33	11.10
vision	WS (%)	15.24	15.56	10.83	15.24	18.63	9.52	15.15	17.95	23.33	15.61
performance (other)	WS (%)	3.81	4.44	5.00	2.86	3.92	5.71	3.03	5.13	10.00	3.99
more mistakes	(%)	5.71	0.00	2.50	2.86	0.00	2.86	3.03	3.85	0.00	4.59
longer time	(%)	8.57	10.00	17.50	22.86	11.76	14.29	6.06	15.38	10.00	18.20
not finished	(%)	2.86	3.33	5.00	2.86	5.88	5.71	0.00	0.00	0.00	3.40
abandoned	(%)	5.71	3.33	12.50	8.57	2.94	2.86	0.00	0.00	5.00	4.74
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	2.86	0.00	0.00	0.00	0.57
completion (other)	(%)	0.00	0.00	0.00	5.71	0.00	0.00	0.00	3.85	0.00	0.79
cold / flu	WS (%)	34.29	38.89	30.83	35.24	31.37	31.43	29.29	21.79	30.00	36.60
air quality	WS (%)	51.43	41.11	45.00	43.81	47.06	41.90	42.42	35.90	58.33	45.59
noise	WS (%)	33.33	38.89	30.83	38.10	34.31	40.95	33.33	33.33	30.00	36.37
vibration	WS (%)	32.38	32.22	31.67	33.33	31.37	27.62	29.29	25.64	23.33	29.29
too bright	WS (%)	6.67	3.33	2.50	2.86	5.88	5.71	6.06	5.13	6.67	5.39
too dark	WS (%)	24.76	16.67	17.50	25.71	17.65	18.10	20.20	19.23	13.33	19.08
too hot	WS (%)	17.14	12.22	15.00	8.57	15.69	13.33	16.16	11.54	11.67	14.31
too cold	WS (%)	8.57	12.22	5.83	7.62	7.84	8.57	9.09	10.26	10.00	9.27
other (other)	WS (%)	7.62	1.11	4.17	1.90	3.92	3.81	1.01	1.28	16.67	3.06

Ave.* = average over days 1.5 through 10.5

Table D.1.6: Weighted Severity, Ship D, cognitive tasks, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	19.19	28.38	24.58	26.58	15.26	34.63	27.13	35.34	26.75	40.60
sleep time	WS (%)	29.29	31.53	28.33	26.16	22.89	34.20	27.52	33.73	27.16	41.45
sleep motions	WS (%)	4.04	8.56	7.50	8.86	7.63	22.08	23.26	34.14	23.05	40.60
sleep MS	WS (%)	1.01	1.35	0.42	1.27	0.40	1.30	1.94	2.41	2.47	5.13
sleep (other)	WS (%)	19.19	21.62	15.00	16.03	12.05	16.02	13.18	12.85	7.00	7.69
mental fatigue	WS (%)	25.25	19.37	15.42	15.19	14.86	19.05	19.77	21.69	16.87	20.51
physical fatigue	WS (%)	22.22	23.87	20.42	19.83	18.47	21.21	21.32	24.90	20.16	25.64
sleepy	WS (%)	31.31	30.18	25.00	26.16	20.48	25.11	27.91	27.31	20.99	31.62
headache	WS (%)	13.13	14.41	14.17	13.50	16.06	16.02	16.67	18.47	15.64	19.23
apathy	WS (%)	14.14	11.71	9.17	12.66	15.26	13.42	15.12	16.06	15.23	17.09
tension	WS (%)	11.11	9.91	10.83	8.02	10.84	12.12	12.79	9.24	9.47	8.97
vomit	WS (%)	0.00	0.00	0.42	0.84	0.40	1.73	0.78	2.01	0.82	2.14
nausea	WS (%)	1.01	0.45	1.25	3.38	4.02	3.90	6.98	4.82	4.12	3.85
stomach awareness	WS (%)	5.05	3.15	4.58	6.33	5.62	9.52	12.02	9.64	10.29	8.55
symptom (other)	WS (%)	7.07	2.70	6.67	1.69	3.61	1.73	3.10	2.01	1.65	0.85
MISC	WS (%)	2.42	3.24	2.88	2.41	4.34	7.40	8.49	6.14	7.41	6.92
MS medicine	WS (%)	27.27	12.16	10.00	10.13	8.43	16.88	11.63	13.25	11.11	11.54
decision making	WS (%)	10.10	8.11	7.08	5.91	10.04	8.23	6.59	6.02	6.17	8.12
concentration	WS (%)	17.17	15.77	12.92	10.97	16.06	14.29	12.40	13.25	11.93	15.81
memory	WS (%)	14.14	10.36	9.58	6.33	7.63	9.09	6.98	6.83	5.76	8.55
simple tasks	WS (%)	10.10	8.56	4.58	3.80	5.62	5.63	3.88	3.61	3.70	5.13
balance	WS (%)	10.10	10.81	7.08	7.59	8.84	13.85	18.22	12.85	20.16	23.08
carrying / moving	WS (%)	6.06	5.41	2.92	4.64	5.22	6.49	10.47	8.03	13.99	14.53
hand coordination	WS (%)	9.09	3.60	4.58	2.53	4.42	5.19	5.43	5.22	7.00	5.13
vision	WS (%)	12.12	12.16	11.67	10.55	10.84	11.69	9.69	8.03	9.88	10.26
performance (other)	WS (%)	5.05	1.35	2.50	1.69	2.41	0.87	1.16	1.20	0.82	1.28
more mistakes	(%)	6 06	5.41	2.50	1.27	4.82	6.49	3.49	2.41	7.41	2.56
longer time	(%)	18.18	9.46	3.75	8.86	8.43	18.18	15.12	12.05	12.35	15.38
not finished	(%)	0.00	4.05	3.75	3.80	3.61	1.30	2.33	2.41	1.23	3.85
abandoned	(%)	0.00	2.70	2.50	2.53	3.61	5.19	3.49	2.41	4.94	3.85
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	1.30	0.00	1.20	0.00	0.00
completion (other)	(%)	0.00	0.00	1.25	0.00	1.20	1.30	1.16	1.20	0.00	0.00
cold / flu	WS (%)	39.39	31.08	31.25	26.16	21.69	24.24	17.05	22.09	18.52	21.79
air quality	WS (%)	32.32	37.84	37.08	31.65	30.92	38.96	32.17	36.14	33.33	35.04
noise	WS (%)	30.30	24.77	24.17	21.94	20.08	22.94	25.19	28.11	22.22	25.21
vibration	WS (%)	16.16	11.26	11.25	10.13	14.46	14.29	19.38	19.68	20.58	20.94
too bright	WS (%)	3.03	4.05	4.58	2.95	3.61	2.60	4.65	3.21	3.29	5.13
too dark	WS (%)	7.07	15.77	15.00	11.81	12.85	15.15	12.02	15.26	11.11	14.10
too hot	WS (%)	9.09	4.95	4.17	5.06	6.43	3.90	6.59	7.63	7.00	6.41
too cold	WS (%)	6.06	6.31	6.25	6.75	5.22	8.23	5.43	4.42	2.88	4.27
other (other)	WS (%)	6.06	1.80	2.50	1.27	2.41	2.60	3.49	2.81	3.70	0.85

Table D.1.6: Weighted Severity, Ship D, cognitive tasks, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	22.36	28.00	23.92	35.47	34.18	25.10	20.25	27.45	19.19	27.07
sleep time	WS (%)	22.36	28.89	31.76	32.05	36.29	26.34	25.74	32.84	20.20	29.41
sleep motions	WS (%)	24.39	24.44	21.96	32.48	27.00	18.52	14.77	12.25	10.61	19.27
sleep MS	WS (%)	2.03	1.78	1.57	2.99	2.53	2.47	0.84	0.98	1.01	1.78
sleep (other)	WS (%)	3.66	8.44	8.63	7.26	14.35	7.00	7.59	14.22	10.61	11.70
mental fatigue	WS (%)	10.98	13.78	11.76	21.37	17.72	17.28	13.08	15.69	9.09	16.77
physical fatigue	WS (%)	14.23	17.33	17.25	22.65	24.47	19.75	16.88	20.10	15.66	20.34
sleepy	WS (%)	19.92	22.67	19.22	29.91	27.85	21.40	20.68	24.51	17.68	24.73
headache	WS (%)	11.79	12.89	16.08	15.81	13.08	12.35	10.97	9.80	16.16	14.54
apathy	WS (%)	10.98	14.67	10.98	15.81	11.81	17.28	13.92	15.20	13.13	13.88
tension	WS (%)	7.72	9.33	8.24	7.69	6.33	7.41	7.17	7.84	11.11	9.27
vomit	WS (%)	1.63	1.33	1.57	2.99	1.69	1.65	2.53	1.47	1.01	1.32
nausea	WS (%)	2.44	2.22	4.71	3.42	1.69	1.65	2.95	2.45	1.52	2.99
stomach awareness	WS (%)	5.69	3.11	9.41	8.55	4.22	3.70	2.95	3.43	4.55	6.34
symptom (other)	WS (%)	1.63	0.89	3.14	2.14	2.95	0.82	2.53	0.98	2.02	2.54
MISC	WS (%)	5.61	5.07	6.24	7.95	4.30	6.05	4.68	4.85	3.94	5.28
MS medicine	WS (%)	8.54	9.33	11.76	10.26	7.59	11.11	7.59	8.82	6.06	11.24
decision making	WS (%)	5.28	5.33	5.49	8.55	9.28	7.82	5.91	7.84	6.06	7.26
concentration	WS (%)	7.72	8.89	9.41	10.26	14.35	10.29	6.75	10.29	8.59	11.95
memory	WS (%)	4.47	4.44	4.71	7.26	9.28	7.00	3.80	6.86	5.05	7.27
simple tasks	WS (%)	2.44	4.00	4.31	4.27	5.91	4.94	1.69	3.92	3.03	4.69
balance	WS (%)	14.23	12.00	14.51	15.81	16.88	9.88	8.44	11.76	6.57	12.77
carrying / moving	WS (%)	10.16	5.78	9.41	10.68	9.28	6.58	5.49	6.86	5.56	7.77
hand coordination	WS (%)	4.07	3.56	3.53	5.56	4.64	3.29	2.53	2.94	3.03	4.49
vision	WS (%)	8.94	8.89	7.45	9.40	10.97	9.47	5.91	6.37	8 59	9.62
performance (other)	WS (%)	0.41	0.44	1.96	1.28	0.84	1.23	1.27	1.96	3.54	1.65
more mistakes	(%)	1.22	2.67	1.18	1.28	6.33	2.47	5.06	1.47	1.52	3.45
longer time	(%)	6.10	5.33	7.06	12.82	10.13	8.64	2.53	5.88	4.55	9.73
not finished	(%)	1.22	2.67	1.18	0.00	1.27	2.47	1.27	0.00	1.52	2.00
abandoned	(%)	2.44	2.67	3.53	1.28	1.27	0.00	1.27	0.00	1.52	2.38
not attempt	(%)	1.22	0.00	0.00	0.00	1.27	1.23	1.27	0.00	1.52	0.47
completion (other)	(%)	0.00	0.00	0.00	2.56	0.00	0.00	1.27	1.47	1.52	0.68
cold / flu	WS (%)	18.70	16.89	19.61	19.66	17.72	19.34	18.57	18.63	16.16	22.03
air quality	WS (%)	32.93	29.78	31.76	34.19	33.33	29.22	32.91	33.82	29.29	33.30
noise	WS (%)	22.36	21.33	17.25	22.65	21.94	25.51	18.99	23.53	17.68	22.96
vibration	WS (%)	18.70	15.11	16.86	18.38	17.72	16.05	16.46	16.67	11.62	16.09
too bright	WS (%)	4.47	4.00	3.53	2.99	4.64	2.88	4.64	2.45	2.02	3.62
too dark	WS (%)	13.01	8.44	9.41	15.81	11.39	13.58	12.66	11.27	9.60	12.39
too hot	WS (%)	6.50	5.33	5.88	3.42	5.49	3.70	6.75	4.90	4.55	5.67
too cold	WS (%)	4.47	4.89	3.53	3.85	5.06	4.94	3.80	3.92	5.56	5.04
other (other)	WS (%)	2.44	1.33	2.75	1.28	2.95	0.82	3.38	1.96	6.57	2.68

Ave.* = average over days 1.5 through 10.5

Table D.1.7: Weighted Severity, Ship D, physical tasks, days 1.5 to 6.0 (page 1 of 2)

Parameter	Units	Day of Trial									
		1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	16.99	23.53	20.37	32.87	18.93	31.94	27.40	35.32	29.33	41.92
sleep time	WS (%)	22.88	22.06	26.39	31.48	23.46	33.33	28.31	30.35	28.89	36.36
sleep motions	WS (%)	8.50	13.73	5.56	15.74	10.29	21.30	26.94	31.84	30.22	39.90
sleep MS	WS (%)	1.31	0.98	0.46	2.78	0.41	0.93	1.37	2.99	2.22	5.05
sleep (other)	WS (%)	11.76	15.20	8.33	19.91	4.12	13.43	13.70	9.95	5.33	10.10
mental fatigue	WS (%)	8.50	11.76	7.41	17.13	10.70	15.74	12.79	14.93	12.00	14.65
physical fatigue	WS (%)	18.95	14.22	12.96	19.44	14.81	16.67	17.81	18.41	18.22	25.76
sleepy	WS (%)	18.95	25.00	16.20	22.22	19.75	24.07	21.92	22.39	25.78	31.31
headache	WS (%)	9.15	6.37	8.80	5.09	11.11	7.87	12.33	10.95	14.67	13.64
apathy	WS (%)	3.92	3.43	5.09	8.80	5.35	8.33	12.33	11.44	10.67	11.62
tension	WS (%)	3.92	7.84	6.02	5.09	4.94	3.24	5.48	5.97	6.22	5.05
vomit	WS (%)	0.00	0.00	0.00	1.85	0.00	0.00	1.37	0.50	1.33	1.52
nausea	WS (%)	2.61	1.96	0.00	1.39	2.06	1.85	7.76	3.48	7.11	3.03
stomach awareness	WS (%)	3.27	2.94	0.93	3.70	5.76	3.24	11.87	4.48	11.56	9.09
symptom (other)	WS (%)	2.61	1.96	1.85	3.24	2.47	0.00	0.46	0.00	0.00	0.00
MISC	WS (%)	4.51	4.12	3.06	4.03	4.81	5.69	7.40	6.72	8.00	7.12
MS medicine	WS (%)	13.73	8.82	8.33	5.56	9.88	9.72	8.22	5.97	10.67	10.61
decision making	WS (%)	2.61	7.84	4.17	8.33	5.35	4.17	4.11	3.98	5.78	4.04
concentration	WS (%)	9.15	12.75	9.26	11.11	9.88	12.04	11.42	7.96	10.67	10.61
memory	WS (%)	3.92	8.82	3.24	7.87	4.94	4.63	5.02	2.99	4.00	2.53
simple tasks	WS (%)	0.65	3.92	1.85	3.70	2.06	3.24	2.28	1.99	2.22	3.03
balance	WS (%)	7.19	10.29	7.41	8.80	7.41	12.50	15.07	11.94	22.22	19.70
carrying / moving	WS (%)	4.58	7.35	2.31	4.63	2.06	8.80	7.76	7.46	12.44	10.61
hand coordination	WS (%)	1.96	5.39	0.93	3.70	2.47	4.17	2.74	2.99	4.00	5.05
vision	WS (%)	5.23	6.86	1.85	5.09	4.94	6.94	3.65	2.49	4.89	4.04
performance (other)	WS (%)	0.00	0.49	0.00	1.39	1.23	3.70	0.91	0.00	1.33	1.52
more mistakes	(%)	0.00	1.47	4.17	1.39	2.47	2.78	4.11	1.49	2.67	3.03
longer time	(%)	1.96	4.41	4.17	4.17	8.64	5.56	16.44	8.96	10.67	9.09
not finished	(%)	0.00	1.47	1.39	0.00	2.47	0.00	1.37	0.00	2.67	0.00
abandoned	(%)	0.00	1.47	0.00	0.00	1.23	0.00	5.48	2.99	5.33	4.55
not attempt	(%)	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00	5.33	0.00
completion (other)	(%)	0.00	0.00	0.00	0.00	1.23	0.00	1.37	0.00	1.33	0.00
cold / flu	WS (%)	20.26	20.10	19.91	19.91	18.11	16.20	19.18	17.41	16.89	19.19
air quality	WS (%)	34.64	34.31	33.80	33.33	31.69	29.63	36.07	32.84	33.78	32.32
noise	WS (%)	21.57	25.98	23.61	26.39	22.22	22.69	29.68	23.38	23.11	24.24
vibration	WS (%)	13.73	17.16	13.43	18.98	15.64	16.20	23.74	18.41	21.33	24.24
too bright	WS (%)	3.92	3.43	4.17	5.09	2.88	3.70	5.94	4.48	4.89	7.07
too dark	WS (%)	6.54	2.94	4.63	4.63	5.35	6.94	4.57	2.99	4.44	2.02
too hot	WS (%)	7.19	7.84	5.56	8.80	9.88	6.94	10.50	7.96	10.22	7.07
too cold	WS (%)	7.84	8.82	9.26	6.48	5.76	4.63	5.02	5.97	5.78	6.57
other (other)	WS (%)	1.31	1.47	1.39	0.00	0.41	0.46	0.46	0.00	1.33	0.00

Table D.1.7: Weighted Severity, Ship D, physical tasks, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	24.32	26.77	21.54	32.80	27.40	20.11	26.48	27.12	27.21	26.97
sleep time	WS (%)	20.27	28.28	21.14	29.63	26.94	22.75	26.03	31.64	27.89	27.27
sleep motions	WS (%)	23.87	23.23	21.54	34.39	26.94	17.99	15.53	13.56	12.24	20.70
sleep MS	WS (%)	1.80	3.54	2.03	3.17	2.74	2.65	0.00	0.56	4.08	2.06
sleep (other)	WS (%)	6.76	5.05	7.72	5.82	9.59	3.17	7.76	9.60	8.16	9.24
mental fatigue	WS (%)	8.56	15.15	10.98	14.81	13.24	10.05	10.96	13.56	13.61	12.45
physical fatigue	WS (%)	13.51	19.19	15.45	21.69	20.55	11.64	14.61	17.51	24.49	17.68
sleepy	WS (%)	18.92	23.23	20.73	28.57	22.37	16.40	20.55	27.12	27.89	22.81
headache	WS (%)	11.26	11.11	11.38	12.17	12.79	10.05	6.85	12.43	14.29	10.65
apathy	WS (%)	7.21	10.10	9.76	10.05	9.13	7.94	8.68	10.73	14.97	8.92
tension	WS (%)	3.15	6.57	4.88	8.99	6.85	3.17	1.83	6.21	4.76	5.27
vomit	WS (%)	0.45	1.01	2.85	2.65	2.28	0.53	0.46	0.56	0.68	0.95
nausea	WS (%)	2.25	2.02	5.28	4.23	1.83	0.53	0.91	0.56	2.72	2.72
stomach awareness	WS (%)	6.31	3.54	6.50	10.05	5.94	3.17	1.83	3.39	4.76	5.39
symptom (other)	WS (%)	0.00	1.52	1.22	1.06	0.91	0.00	0.00	0.00	0.00	0.91
MISC	WS (%)	5.14	4.39	6.95	6.67	5.21	3.97	3.84	4.07	3.88	5.24
MS medicine	WS (%)	8.11	10.61	12.20	14.29	10.96	11.11	9.59	8.47	14.29	10.06
decision making	WS (%)	4.05	3.54	4.47	3.70	3.20	2.12	2.74	2.82	6.80	4.41
concentration	WS (%)	5.86	8.08	6.50	7.94	4.11	3.70	4.11	9.04	12.24	8.76
memory	WS (%)	2.70	1.52	2.85	2.12	4.11	3.17	1.83	2.82	6.12	3.96
simple tasks	WS (%)	1.80	1.52	2.85	2.12	1.83	1.59	0.46	3.39	3.40	2.31
balance	WS (%)	11.71	11.11	13.01	14.29	12.79	9.52	5.94	10.73	15.65	11.96
carrying / moving	WS (%)	7.66	6.06	7.32	10.05	8.22	6.88	4.11	7.34	5.44	6.90
hand coordination	WS (%)	3.15	3.54	3.66	4.76	3.20	3.70	0.91	3.39	6.12	3.46
vision	WS (%)	4.50	3.03	2.85	4.23	4.57	2.12	3.20	5.08	8.84	4.44
performance (other)	WS (%)	1.35	1.52	1.22	0.00	1.37	1.59	0.00	0.00	2.04	1.03
more mistakes	(%)	1.35	0.00	0.00	0.00	2.74	0.00	4.11	0.00	2.04	1.78
longer time	(%)	2.70	1.52	3.66	9.52	4.11	1.59	2.74	5.08	6.12	5.85
not finished	(%)	0.00	0.00	1.22	1.59	2.74	1.59	0.00	0.00	0.00	0.87
abandoned	(%)	2.70	0.00	2.44	4.76	1.37	1.59	0.00	1.69	2.04	1.98
not attempt	(%)	1.35	0.00	0.00	0.00	1.37	0.00	0.00	0.00	0.00	0.64
completion (other)	(%)	0.00	0.00	0.00	1.59	0.00	0.00	0.00	0.00	0.00	0.29
cold / flu	WS (%)	14.41	16.67	15.04	16.40	16.44	16.40	16.44	14.12	17.69	17.41
air quality	WS (%)	30.18	31.82	27.24	29.63	30.14	33.33	28.77	25.42	34.01	31.73
noise	WS (%)	21.17	22.73	17.07	22.75	22.37	24.34	18.26	19.77	19.05	22.65
vibration	WS (%)	18.47	20.20	16.26	24.34	19.18	22.22	15.53	17.51	17.01	18.61
too bright	WS (%)	4.05	2.53	2.85	3.70	5.48	3.70	4.57	4.52	6.80	4.41
too dark	WS (%)	5.41	5.05	5.69	4.76	3.20	2.12	1.83	2.26	0.68	4.00
too hot	WS (%)	7.21	7.58	8.54	8.47	8.22	7.41	5.94	7.91	5.44	7.82
too cold	WS (%)	5.41	5.05	2.44	4.76	2.74	7.41	3.20	3.95	5.44	5.61
other (other)	WS (%)	1.35	1.01	1.22	0.00	1.37	2.12	0.46	0.00	2.72	0.90

Ave.* = average over days 1.5 through 10.5

Table D.2.1: Correlation, Ship D, all subjects (page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914** p= 000	**0.766** p= .000	0.434 p= .063
ship pitch	**0.914** p= 000	1	**0.753** p= .000	**0.638** p= 003
ship Laccn	**0.766** p= .000	**0.753** p= .000	1	**0.775** p= .000
ship roll	0.434 p= 063	**0.638** p= .003	**0.775** p= 000	1
sleep quality	0.291 p= .228	0.221 p= .363	0.425 p= .070	0.279 p= 248
sleep time	0.127 p= .604	0.088 p= .719	0.218 p= .369	0.188 p= .440
sleep motions	0.551 p= .015	0.540 p= 017	**0.678** p= .001	0.545 p= 016
sleep MS	0.478 p= 038	0.496 p= .031	0.504 p= 028	0.479 p= 038
sleep (other)	-0.532 p= 019	-0.542 p= 017	-0.552 p= .014	-0.396 p= .093
mental fatigue	-0.008 p= 975	0.016 p= .947	0.179 p= .464	0.291 p= .226
physical fatigue	0.148 p= .545	0.169 p= 490	0.224 p= .356	0.382 p= .107
sleepy	0.048 p= .844	0.092 p= .707	0.256 p= .290	0.389 p= 100
headache	**0.694** p= .001	0.601 p= .006	0.506 p= .027	0.356 p= 134
apathy	**0.658** p= 002	0.536 p= 018	0.574 p= 010	0.368 p= .121
tension	0.138 p= .573	0.054 p= 828	0.109 p= .657	0.012 p= .961
vomit	0.599 p= 007	**0.623** p= 004	0.611 p= 005	0.420 p= 073
nausea	0.567 p= .011	0.547 p= 015	0.411 p= .081	0.283 p= .240
stomach awareness	**0.658** p= 002	**0.663** p= .002	0.548 p= .015	0.426 p= .069
symptom (other)	-0.613 p= 005	-0.459 p= 048	-0.602 p= .006	-0.303 p= 208
MISC	**0.709** p= 001	**0.721** p= 000	**0.659** p= .002	0 514 p= 024
MS medicine	-0.194 p= 427	0.089 p= .717	-0.333 p= 164	0.171 p= 485
decision making	-0.060 p= .807	-0.168 p= .493	-0.073 p= .768	-0.111 p= .652
concentration	-0.178 p= .467	-0.234 p= .335	-0.224 p= 356	-0.114 p= .642
memory	-0.367 p= .122	-0.315 p= .189	-0.337 p= 159	-0.094 p= 702
simple tasks	-0.170 p= .487	-0.138 p= .573	-0.165 p= 499	-0.006 p= .980
balance	**0.695** p= .001	**0.706** p= 001	**0.717** p= .001	**0.625** p= .004
carrying / moving	**0.694** p= 001	**0.750** p= 000	**0.764** p= .000	**0.724** p= .000
hand coordination	0.365 p= .125	0 461 p= 047	0.331 p= .167	0.509 p= 026
vision	-0.118 p= .630	-0.144 p= .555	-0.198 p= .415	-0.125 p= .609
performance (other)	0.099 p= 687	0.042 p= .864	-0.452 p= .052	-0.439 p= 060
more mistakes	-0.130 p= .595	-0.224 p= .357	-0.051 p= .837	-0.082 p= .738
longer time	0.339 p= .155	0.351 p= .140	0.328 p= .171	0.358 p= 132
not finished	-0.037 p= 879	-0.182 p= .455	0.135 p= .582	-0.095 p= 699
abandoned	**0.628** p= 004	0.532 p= 019	0.561 p= .012	0.294 p= 222
not attempt	0.478 p= 038	0 463 p= .046	0.510 p= 026	0.425 p= .069
completion (other)	0.232 p= .340	0.183 p= 454	0.257 p= .288	0.124 p= 614
cold / flu	**-0.746** p= 000	-0.614 p= 005	**-0.668** p= 002	-0.328 p= 171
air quality	-0.382 p= 107	-0.351 p= .141	-0.237 p= .329	-0.090 p= 713
noise	-0.318 p= 185	-0.211 p= .386	-0.026 p= .917	0.220 p= .364
vibration	0.612 p= .005	**0.673** p= 002	**0.784** p= .000	**0.761** p= 000
too bright	0.121 p= 623	0.099 p= .688	0.197 p= .420	0.166 p= .497
too dark	-0.064 p= .796	-0 085 p= .731	0.108 p= .659	-0.065 p= .790
too hot	0.025 p= .919	0.073 p= 767	0.123 p= 616	0.316 p= 188
too cold	**-0.623** p= .004	-0.579 p= .009	-0.600 p= .007	-0.418 p= .075
other (other)	0.080 p= .745	0.101 p= 681	-0.238 p= .326	-0.091 p= 710

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.1: Correlation, Ship D, all subjects (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0.291 p= .226	0.127 p= .604	0.551 p= .015	0.478 p= .038	-0.532 p= .019
ship pitch	0.221 p= .363	0.088 p= .719	0.540 p= .017	0.496 p= .031	-0.542 p= .017
ship Laccn	0.425 p= .070	0.218 p= .369	**0.678** p= .001	0.504 p= .028	-0.552 p= .014
ship roll	0.279 p= .248	0.188 p= .440	0.545 p= .016	0.479 p= .038	-0.396 p= .093
sleep quality	1	**0.861** p= .000	**0.804** p= .000	**0.699** p= .001	0.075 p= .759
sleep time	**0.861** p= .000	1	0.592 p= .008	0.523 p= .022	0.221 p= .363
sleep motions	**0.804** p= .000	0.592 p= .008	1	**0.808** p= .000	-0.388 p= .101
sleep MS	**0.699** p= .001	0.523 p= .022	**0.808** p= .000	1	-0.300 p= .212
sleep (other)	0.075 p= .759	0.221 p= .363	-0.388 p= .101	-0.300 p= .212	1
mental fatigue	**0.783** p= .000	**0.773** p= .000	0.537 p= .018	0.455 p= .051	0.345 p= .148
physical fatigue	**0.754** p= .000	**0.779** p= .000	0.564 p= .012	**0.679** p= .001	0.256 p= .290
sleepy	**0.779** p= .000	**0.796** p= .000	0.528 p= .020	0.551 p= .014	0.334 p= .162
headache	0.389 p= .100	0.297 p= .216	**0.619** p= .005	0.611 p= .005	-0.363 p= .127
apathy	0.518 p= .023	0.361 p= .129	**0.637** p= .003	**0.623** p= .004	-0.467 p= .044
tension	0.167 p= .495	0.161 p= .511	0.047 p= .847	0.054 p= .826	0.262 p= .279
vomit	0.551 p= .015	0.371 p= .117	**0.714** p= .001	0.581 p= .009	-0.433 p= .064
nausea	0.255 p= .292	0.128 p= .603	0.528 p= .020	0.258 p= .287	-0.181 p= .458
stomach awareness	0.436 p= .062	0.286 p= .235	**0.663** p= .002	0.456 p= .050	-0.206 p= .398
symptom (other)	-0.514 p= .024	-0.291 p= .227	-0.591 p= .008	-0.493 p= .032	0.448 p= .054
MISC	0.514 p= .024	0.365 p= .124	**0.794** p= .000	0.487 p= .035	-0.390 p= .099
MS medicine	-0.103 p= .676	0.081 p= .742	-0.053 p= .831	0.034 p= .890	0.178 p= .466
decision making	0.036 p= .884	0.110 p= .654	-0.233 p= .338	-0.037 p= .880	0.471 p= .042
concentration	0.224 p= .357	0.395 p= .095	-0.066 p= .789	0.031 p= .900	0.585 p= .009
memory	-0.015 p= .950	0.133 p= .588	-0.341 p= .153	-0.144 p= .555	**0.778** p= .000
simple tasks	0.109 p= .656	0.298 p= .215	-0.182 p= .455	0.020 p= .934	**0.661** p= .002
balance	**0.629** p= .004	0.510 p= .026	**0.808** p= .000	**0.699** p= .001	-0.287 p= .233
carrying / moving	0.613 p= .005	0.447 p= .055	**0.827** p= .000	**0.685** p= .001	-0.354 p= .137
hand coordination	0.426 p= .069	0.352 p= .139	0.481 p= .037	0.541 p= .017	0.026 p= .917
vision	0.024 p= .924	0.028 p= .911	-0.222 p= .362	-0.004 p= .986	0.526 p= .021
performance (other)	-0.313 p= .193	-0.176 p= .472	-0.424 p= .071	-0.092 p= .708	0.195 p= .424
more mistakes	0.035 p= .886	0.082 p= .739	-0.013 p= .958	-0.241 p= .319	0.212 p= .384
longer time	0.524 p= .021	0.484 p= .036	0.527 p= .020	0.336 p= .160	0.148 p= .545
not finished	-0.021 p= .933	-0.017 p= .946	-0.037 p= .882	0.052 p= .833	0.120 p= .625
abandoned	0.432 p= .065	0.261 p= .280	**0.625** p= .004	0.412 p= .079	-0.224 p= .357
not attempt	0.035 p= .885	-0.199 p= .415	0.299 p= .214	0.107 p= .662	-0.267 p= .269
completion (other)	0.079 p= .749	0.003 p= .989	0.096 p= .696	-0.157 p= .520	-0.189 p= .438
cold / flu	-0.166 p= .498	0.025 p= .920	-0.454 p= .051	-0.281 p= .244	**0.681** p= .001
air quality	0.206 p= .399	0.206 p= .397	-0.038 p= .879	-0.050 p= .839	0.567 p= .011
noise	0.327 p= .172	0.317 p= .187	0.175 p= .475	0.201 p= .408	0.420 p= .073
vibration	0.565 p= .012	0.380 p= .108	**0.878** p= .000	**0.709** p= .001	-0.518 p= .023
too bright	0.325 p= .175	0.256 p= .290	0.357 p= .134	0.393 p= .096	0.022 p= .930
too dark	0.346 p= .147	0.230 p= .343	0.245 p= .311	-0.043 p= .861	0.105 p= .670
too hot	-0.093 p= .706	-0.068 p= .782	0.176 p= .471	-0.017 p= .945	0.024 p= .921
too cold	-0.170 p= .486	-0.085 p= .728	-0.486 p= .035	-0.221 p= .363	0.585 p= .008
other (other)	-0.508 p= .026	-0.535 p= .018	-0.379 p= .109	-0.194 p= .425	-0.009 p= .970

Legend: **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.1: Correlation, Ship D, all subjects (page 3 of 9)

	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	-0.008 p= .975	0.148 p= .545	0.048 p= .844	**0.694** p= .001	**0.658** p= .002	0.138 p= .573
ship pitch	0.016 p= .947	0.169 p= .490	0.092 p= .707	0.601 p= .006	0.536 p= .018	0.054 p= .828
ship Laccn	0.179 p= .464	0.224 p= .356	0.256 p= .290	0.506 p= .027	0.574 p= .010	0.109 p= .657
ship roll	0.291 p= .226	0.382 p= .107	0.389 p= .100	0.356 p= .134	0.368 p= .121	0.012 p= .961
sleep quality	**0.783** p= .000	**0.754** p= .000	**0.779** p= .000	0.389 p= .100	0.518 p= .023	0.167 p= .495
sleep time	**0.773** p= .000	**0.779** p= .000	**0.796** p= .000	0.297 p= .216	0.361 p= .129	0.161 p= .511
sleep motions	0.537 p= .018	0 564 p= .012	0.528 p= .020	**0.619** p= .005	**0.637** p= .003	0.047 p= .847
sleep MS	0.455 p= .051	**0.679** p= .001	0.551 p= .014	0.611 p= .005	**0.623** p= .004	0.054 p= .826
sleep (other)	0.345 p= .148	0.256 p= .290	0.334 p= .162	-0.363 p= .127	-0.467 p= .044	0.262 p= .279
mental fatigue	1	**0.790** p= .000	**0.833** p= .000	0.221 p= .363	0.383 p= .106	0.301 p= .211
physical fatigue	**0.790** p= .000	1	**0.877** p= .000	0.521 p= .022	0.424 p= .070	0.354 p= .137
sleepy	**0.833** p= .000	**0.877** p= .000	1	0.321 p= .180	0.278 p= .250	0.395 p= .094
headache	0.221 p= .363	0.521 p= .022	0.321 p= .180	1	0.596 p= .007	0.504 p= .028
apathy	0.383 p= .106	0.424 p= .070	0.278 p= .250	0.596 p= .007	1	0.134 p= .585
tension	0.301 p= .211	0.354 p= .137	0.395 p= .094	0.504 p= .028	0.134 p= .585	1
vomit	0.248 p= .306	0.312 p= .194	0.243 p= .317	0.304 p= .206	0.537 p= .018	-0.233 p= .337
nausea	0.272 p= .261	0.218 p= .370	0.175 p= .474	**0.626** p= .004	0.463 p= .046	0.352 p= .140
stomach awareness	0.394 p= .095	0.407 p= .083	0.366 p= .124	**0.747** p= .000	0.489 p= .034	0.391 p= .098
symptom (other)	-0.205 p= .401	-0.136 p= .580	-0.177 p= .468	-0.289 p= .230	**-0.761** p= .000	0.149 p= .544
MISC	0.426 p= .069	0.337 p= .158	0.342 p= .152	**0.680** p= .001	**0.622** p= .004	0.239 p= .325
MS medicine	0.261 p= .281	0.236 p= .330	0.195 p= .424	0.031 p= .899	-0.192 p= .432	0.043 p= .862
decision making	0.249 p= .304	0.302 p= .209	0.388 p= .101	0.118 p= .631	-0.211 p= .385	0.452 p= .052
concentration	0.500 p= .029	0.512 p= .025	0.566 p= .011	0.289 p= .229	-0.131 p= .592	**0.628** p= .004
memory	0.354 p= .137	0.338 p= .156	0.397 p= .092	-0.085 p= .728	-0.441 p= .059	0.412 p= .080
simple tasks	0.376 p= .112	0.369 p= .120	0.494 p= .032	-0.011 p= .966	-0.336 p= .160	0.405 p= .086
balance	0.389 p= .100	0.546 p= .016	0.545 p= .016	**0.739** p= .000	0.541 p= .017	0.266 p= .271
carrying / moving	0.394 p= .095	0.487 p= .034	0.519 p= .023	**0.635** p= .003	0.545 p= .016	0.108 p= .665
hand coordination	0.526 p= .021	**0.633** p= .004	0.611 p= .005	**0.646** p= .003	0.265 p= .272	0.516 p= .024
vision	0.184 p= .451	0.271 p= .262	0.309 p= .198	0.075 p= .759	-0.306 p= .203	0.451 p= .053
performance (other)	-0.221 p= .364	-0.001 p= .998	-0.207 p= .394	0.165 p= .501	-0.071 p= .772	0.178 p= .466
more mistakes	0.121 p= .623	0.066 p= .790	0.038 p= .876	0.101 p= .679	-0.132 p= .591	0.201 p= .409
longer time	**0.711** p= .001	0.613 p= .005	0.610 p= .006	0.583 p= .009	0.407 p= .083	0.485 p= .035
not finished	-0.001 p= .997	0.015 p= .952	0.002 p= .993	0.150 p= .540	-0.150 p= .540	0.297 p= .216
abandoned	0.262 p= .279	0.288 p= .232	0.333 p= .164	**0.746** p= .000	0.404 p= .087	0.470 p= .042
not attempt	-0.087 p= .725	-0.038 p= .876	-0.146 p= .550	0.353 p= .138	0.308 p= .200	0.076 p= .758
completion (other)	0.228 p= .349	0.128 p= .601	0.143 p= .559	0.314 p= .190	0.307 p= .201	0.472 p= .041
cold / flu	0.168 p= .493	0.106 p= .665	0.178 p= .465	-0.347 p= .146	**-0.693** p= .001	0.139 p= .571
air quality	0 378 p= .110	0.308 p= .199	0.378 p= .111	0.060 p= .806	-0.337 p= .158	0.448 p= .055
noise	**0.632** p= .004	0.424 p= .070	0.496 p= .031	0.024 p= .921	0.002 p= .994	0.289 p= .230
vibration	0.422 p= .072	0.448 p= .055	0.441 p= .059	0.600 p= .007	**0.704** p= .001	0.022 p= .930
too bright	0.053 p= .831	0.401 p= .089	0.300 p= .212	0.326 p= .173	0.176 p= .471	-0.013 p= .958
too dark	0.384 p= .104	0.017 p= .946	0.226 p= .353	0.004 p= .988	-0.194 p= .427	0.165 p= .499
too hot	0.138 p= .573	0.082 p= .737	0.083 p= .736	0.209 p= .391	0.033 p= .892	0.034 p= .889
too cold	0.105 p= .669	0.007 p= .977	0.066 p= .788	-0.287 p= .234	-0.513 p= .025	0.278 p= .249
other (other)	-0.495 p= .031	-0.149 p= .544	-0.402 p= .088	0.181 p= .457	-0.112 p= .648	0.146 p= .550

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade' = not significant (p > 0.05)

Table D.2 1 Correlation, Ship D, all subjects (page 4 of 9)

	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	0.599 p= 007	0.567 p= .011	**0.658** p= .002	-0.613 p= .005	**0.709** p= 001	-0.194 p= 427
ship pitch	**0.623** p= 004	0.547 p= .015	**0.663** p= .002	-0.459 p= .048	**0.721** p= .000	0.089 p= .717
ship Laccn	0.611 p= 005	0.411 p= .081	0.548 p= .015	-0.602 p= .006	**0.659** p= .002	-0.333 p= .164
ship roll	0.420 p= .073	0.283 p= .240	0.426 p= .069	-0.303 p= .208	0.514 p= .024	0.171 p= .485
sleep quality	0.551 p= 015	0.255 p= .292	0.436 p= .062	-0.514 p= .024	0.514 p= .024	-0.103 p= .676
sleep time	0.371 p= .117	0.128 p= .603	0.286 p= .235	-0.291 p= .227	0.365 p= .124	0.081 p= .742
sleep motions	**0.714** p= 001	0.528 p= .020	**0.663** p= .002	-0.591 p= .008	**0.794** p= .000	-0.053 p= .831
sleep MS	0.581 p= 009	0.258 p= .287	0.456 p= .050	-0.493 p= .032	0.487 p= .035	0.034 p= .890
sleep (other)	-0.433 p= .064	-0.181 p= .458	-0.206 p= .398	0.448 p= .054	-0.390 p= .099	0.178 p= 466
mental fatigue	0 248 p= 306	0 272 p= .261	0.394 p= .095	-0.205 p= .401	0.426 p= .069	0.261 p= .281
physical fatigue	0 312 p= 194	0.218 p= 370	0.407 p= .083	-0.136 p= .580	0.337 p= .156	0.236 p= .330
sleepy	0.243 p= 317	0.175 p= 474	0.366 p= .124	-0.177 p= .468	0.342 p= .152	0.195 p= .424
headache	0 304 p= 206	**0.626** p= 004	**0.747** p= 000	-0.289 p= .230	**0.680** p= .001	0.031 p= .899
apathy	0.537 p= 018	0.463 p= 046	0.489 p= .034	**-0.761** p= .000	**0.622** p= 004	-0.192 p= .432
tension	-0.233 p= 337	0.352 p= .140	0.391 p= 098	0.149 p= 544	0.239 p= .325	0.043 p= .862
vomit	1	0.347 p= 145	0.419 p= .074	-0.470 p= .042	0.539 p= .017	-0.173 p= .479
nausea	0.347 p= .145	1	**0.929** p= .000	-0.180 p= .460	**0.845** p= .000	0.094 p= .703
stomach awareness	0.419 p= .074	**0.929** p= 000	1	-0.231 p= .341	**0.892** p= 000	0.115 p= .640
symptom (other)	-0.470 p= 042	-0.180 p= .460	-0.231 p= .341	1	-0.493 p= 032	0.343 p= .150
MISC	0.539 p= .017	**0.845** p= .000	**0.892** p= .000	-0.493 p= 032	1	0.143 p= 558
MS medicine	-0.173 p= 479	0.094 p= .703	0.115 p= .640	0.343 p= .150	0.143 p= .558	1
decision making	-0 326 p= .173	-0.111 p= .651	0.050 p= .838	0.241 p= 321	-0.190 p= .436	-0.016 p= .950
concentration	-0 496 p= .031	0.126 p= .607	0.247 p= .309	0.279 p= .247	0.050 p= .839	0.318 p= .184
memory	-0 564 p= 012	-0.181 p= 456	-0 061 p= .804	0.476 p= .039	-0.267 p= .269	0.369 p= .120
simple tasks	-0.357 p= 133	-0.173 p= .478	-0.049 p= .843	0.275 p= .255	-0.148 p= 546	0.365 p= 124
balance	0 467 p= 044	**0.653** p= .002	**0.810** p= .000	-0.494 p= 032	**0.826** p= 000	0.059 p= .810
carrying / moving	0 546 p= 016	0.613 p= 005	**0.769** p= .000	-0.573 p= 010	**0.832** p= .000	0.094 p= 701
hand coordination	0.079 p= 747	0.437 p= .061	**0.637** p= 003	-0.137 p= .577	0 561 p= 012	0.522 p= 022
vision	-0 445 p= 056	-0.159 p= .514	0.022 p= .930	0.227 p= .350	-0.184 p= .450	0.233 p= .337
performance (other)	-0.328 p= 171	-0.119 p= .627	-0.080 p= .744	0.201 p= 410	-0.225 p= 353	0.343 p= 151
more mistakes	-0.384 p= 105	0.212 p= 383	0.204 p= .403	0.109 p= .656	0.162 p= .506	0.050 p= .839
longer time	0 129 p= .599	**0.728** p= 000	**0.829** p= 000	-0.143 p= .558	**0.747** p= 000	0.291 p= .227
not finished	-0.241 p= 320	0.018 p= .940	0.075 p= .759	0.236 p= .330	-0.084 p= 734	-0.365 p= 125
abandoned	0.256 p= 290	**0.820** p= 000	**0.899** p= .000	-0.314 p= .191	**0.813** p= .000	-0.090 p= 714
not attempt	0.064 p= .796	0.505 p= 027	0.511 p= 025	-0.340 p= .155	0.485 p= 035	-0.137 p= .577
completion (other)	0.182 p= 457	0.361 p= .129	0.384 p= .105	0.001 p= 996	0.348 p= 144	-0.087 p= .723
cold / flu	-0.613 p= 005	-0.294 p= 222	-0.258 p= .286	**0.757** p= 000	-0.464 p= .046	0.442 p= .058
air quality	-0 517 p= 023	0.039 p= 874	0.142 p= 563	0.346 p= .147	-0.011 p= .965	0.245 p= .311
noise	-0.316 p= 188	0.094 p= .701	0.188 p= .440	0.130 p= .597	0.122 p= .617	0.234 p= .335
vibration	0.605 p= 006	0.615 p= .005	**0.715** p= 001	-0.591 p= 008	**0.834** p= 000	-0.005 p= 985
too bright	0.151 p= 536	0.191 p= .433	0.279 p= .248	-0.076 p= 758	0.169 p= 490	-0.249 p= .304
too dark	0.017 p= 945	0.085 p= .729	0.233 p= .336	0.031 p= .901	0.259 p= .283	-0.030 p= .903
too hot	-0.080 p= 745	**0.633** p= .004	0.501 p= 029	0.136 p= .578	0 367 p= .122	0.166 p= .498
too cold	**-0.744** p= 000	-0.417 p= .076	-0.334 p= .163	0.516 p= 024	-0.500 p= 029	0.257 p= 287
other (other)	-0.318 p= 184	-0.032 p= 896	-0.091 p= .710	0.199 p= .414	-0.198 p= .417	0.245 p= .313

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2.1: Correlation, Ship D, all subjects (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	-0.060 p= .807	-0.178 p= .467	-0.367 p= .122	-0.170 p= 487
ship pitch	-0.168 p= .493	-0.234 p= 335	-0.315 p= .189	-0.138 p= .573
ship Laccn	-0.073 p= .768	-0.224 p= 356	-0.337 p= .159	-0.165 p= 499
ship roll	-0.111 p= .652	-0.114 p= .642	-0.094 p= .702	-0.006 p= .980
sleep quality	0.036 p= .884	0.224 p= 357	-0.015 p= .950	0.109 p= 655
sleep time	0.110 p= 654	0.395 p= .095	0.133 p= .588	0.298 p= 215
sleep motions	-0.233 p= .338	-0.066 p= .789	-0.341 p= .153	-0.182 p= 455
sleep MS	-0.037 p= .880	0.031 p= 900	-0.144 p= .555	0.020 p= .934
sleep (other)	0.471 p= 042	0.585 p= .009	**0.778** p= .000	**0.661** p= 002
mental fatigue	0.249 p= 304	0.500 p= 029	0.354 p= .137	0.376 p= 112
physical fatigue	0.302 p= .209	0.512 p= 025	0.338 p= .156	0.369 p= 120
sleepy	0.388 p= 101	0.566 p= .011	0.397 p= .092	0.494 p= 032
headache	0.118 p= .631	0.289 p= 229	-0.085 p= .728	-0.011 p= .966
apathy	-0.211 p= .385	-0.131 p= .502	-0.441 p= .059	-0.336 p= 160
tension	0.452 p= .052	**0.628** p= .004	0.412 p= .080	0.405 p= .086
vomit	-0.326 p= 173	-0.496 p= .031	-0.564 p= .012	-0.357 p= 133
nausea	-0.111 p= 651	0.126 p= .607	-0.181 p= .458	-0.173 p= .478
stomach awareness	0.050 p= .838	0.247 p= .309	-0.061 p= .804	-0.049 p= .843
symptom (other)	0.241 p= .321	0.279 p= .247	0.476 p= .039	0.275 p= .255
MISC	-0.190 p= .436	0.050 p= .839	-0.267 p= .269	-0.148 p= .546
MS medicine	-0.016 p= .950	0.318 p= .184	0.369 p= .120	0.365 p= .124
decision making	1	**0.750** p= 000	**0.761** p= 000	**0.750** p= 000
concentration	**0.750** p= 000	1	**0.817** p= 000	**0.754** p= 000
memory	**0.761** p= 000	**0.817** p= .000	1	**0.874** p= .000
simple tasks	**0.750** p= .000	**0.754** p= 000	**0.874** p= .000	1
balance	-0 009 p= .971	0.203 p= 404	-0.107 p= .662	0.042 p= .864
carrying / moving	-0.084 p= 734	0 065 p= .793	-0.174 p= 477	-0.020 p= .936
hand coordination	0.347 p= 146	0.568 p= .011	0.389 p= 100	0.443 p= .058
vision	**0.775** p= 000	**0.712** p= 001	**0.791** p= .000	**0.702** p= .001
performance (other)	0.358 p= .132	0.337 p= 159	0.340 p= .154	0.302 p= .208
more mistakes	0.183 p= .454	0.449 p= .054	0.297 p= 217	0.089 p= .717
longer time	0.278 p= 249	0.597 p= 007	0.327 p= 172	0.248 p= .305
not finished	0.502 p= 028	0.372 p= 117	0.354 p= .137	0.331 p= 166
abandoned	0.149 p= 542	0.326 p= 173	-0.052 p= .834	0.006 p= .980
not attempt	-0.228 p= .349	-0.116 p= 637	-0.163 p= .506	-0.331 p= .167
completion (other)	0 173 p= .478	0.107 p= .662	-0.082 p= .739	-0.216 p= 374
cold / flu	0.405 p= 085	0.589 p= .008	**0.750** p= .000	0.553 p= 014
air quality	0.365 p= .124	**0.705** p= 001	**0.705** p= .001	0.462 p= 047
noise	0.201 p= .408	0.534 p= .019	0.573 p= 010	0.389 p= .100
vibration	-0.254 p= .295	-0.110 p= .653	-0.355 p= .136	-0.246 p= .311
too bright	-0.054 p= 826	0.085 p= .730	-0.007 p= .977	-0.158 p= .517
too dark	0.261 p= 280	0.285 p= .237	0.245 p= .312	0.189 p= .439
too hot	0.010 p= .967	0.198 p= 416	0.050 p= .839	-0.003 p= .989
too cold	0 448 p= .054	0.586 p= 008	**0.747** p= .000	0.523 p= 022
other (other)	-0.056 p= .819	-0 036 p= .883	0.085 p= .730	-0.084 p= .731

Legend: **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2 1. Correlation, Ship D, all subjects (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	**0.695** p= .001	**0.694** p= .001	0.365 p= .125	-0.118 p= .630	0.099 p= .687
ship pitch	**0.706** p= 001	**0.750** p= .000	0.461 p= 047	-0.144 p= .555	0.042 p= .864
ship Laccn	**0.717** p= 001	**0.764** p= .000	0.331 p= .167	-0.198 p= .415	-0.452 p= .052
ship roll	**0.625** p= 004	**0.724** p= .000	0.509 p= 026	-0.125 p= .609	-0.439 p= .060
sleep quality	**0.629** p= .004	0.613 p= .005	0.426 p= .069	0.024 p= .924	-0.313 p= .193
sleep time	0.510 p= .026	0.447 p= .055	0.352 p= .139	0.028 p= .911	-0.176 p= 472
sleep motions	**0.808** p= 000	**0.827** p= .000	0.481 p= 037	-0.222 p= .362	-0.424 p= .071
sleep MS	**0.689** p= .001	**0.685** p= .001	0.541 p= .017	-0.004 p= .986	-0.092 p= .708
sleep (other)	-0.287 p= .233	-0.354 p= 137	0.026 p= .917	0.526 p= 021	0.195 p= 424
mental fatigue	0.389 p= 100	0.394 p= .095	0.526 p= .021	0.184 p= .451	-0.221 p= .364
physical fatigue	0 546 p= 016	0 487 p= .034	**0.633** p= .004	0.271 p= .282	-0.001 p= .998
sleepy	0.545 p= 016	0.519 p= 023	0.611 p= .005	0.309 p= .198	-0.207 p= 394
headache	**0.739** p= 000	**0.635** p= 003	**0.646** p= 003	0.075 p= .759	0.165 p= 501
apathy	0 541 p= 017	0.545 p= .016	0.265 p= 272	-0.306 p= .203	-0.071 p= 772
tension	0 266 p= 271	0.106 p= .665	0.516 p= 024	0.451 p= 053	0.178 p= 466
vomit	0.467 p= 044	0.546 p= .016	0.079 p= 747	-0.445 p= .056	-0.328 p= 171
nausea	**0.653** p= 002	0 613 p= 005	0.437 p= 061	-0.159 p= 514	-0.119 p= .627
stomach awareness	**0.810** p= 000	**0.769** p= .000	**0.637** p= 003	0.022 p= 930	-0.080 p= .744
symptom (other)	-0.494 p= .032	-0.573 p= 010	-0.137 p= .577	0.227 p= .350	0.201 p= 410
MISC	**0.826** p= .000	**0.832** p= 000	0.561 p= .012	-0.184 p= .450	-0.225 p= .353
MS medicine	0 059 p= 810	0.094 p= .701	0.522 p= 022	0.233 p= 337	0.343 p= .151
decision making	-0.009 p= 971	-0.084 p= .734	0.347 p= .146	**0.775** p= 000	0.358 p= .132
concentration	0.203 p= 404	0.065 p= .793	0.568 p= 011	**0.712** p= 001	0.337 p= .159
memory	-0.107 p= .662	-0.174 p= .477	0.389 p= 100	**0.791** p= .000	0.340 p= 154
simple tasks	0.042 p= .864	-0.020 p= 936	0.443 p= 058	**0.702** p= .001	0.302 p= .208
balance	1	**0.963** p= 000	**0.698** p= 001	0.055 p= .823	-0.182 p= .456
carrying / moving	**0.963** p= .000	1	**0.679** p= 001	-0.029 p= .907	-0.280 p= .246
hand coordination	**0.698** p= 001	**0.679** p= 001	1	0.523 p= 021	0.193 p= .429
vision	0.055 p= 823	-0.029 p= .907	0.523 p= .021	1	0.545 p= 016
performance (other)	-0.182 p= .456	-0.280 p= .246	0.193 p= .429	0.545 p= .016	1
more mistakes	0 204 p= .402	0.102 p= .679	0.180 p= .461	0.349 p= .143	0.020 p= 935
longer time	**0.670** p= 002	0 613 p= 005	**0.703** p= 001	0.283 p= .241	-0.016 p= .950
not finished	0.046 p= .853	-0.093 p= 704	-0.022 p= .928	0.274 p= 257	-0.071 p= .772
abandoned	**0.830** p= .000	**0.752** p= 000	0.589 p= 008	0.113 p= .646	-0.124 p= .614
not attempt	0.522 p= .022	0.528 p= .020	0.293 p= .223	0.053 p= 828	-0.112 p= .649
completion (other)	0.068 p= 783	0.060 p= .806	0.158 p= 518	-0.016 p= 949	-0.046 p= .851
cold / flu	-0.364 p= .126	-0.412 p= 079	0.083 p= .734	0.439 p= .060	0.154 p= .528
air quality	0.114 p= 643	0.035 p= .886	0.406 p= .085	0.538 p= 018	-0.008 p= .973
noise	0.151 p= .536	0.127 p= 603	0.349 p= .143	0.266 p= .272	-0.241 p= .321
vibration	**0.829** p= 000	**0.876** p= 000	0.473 p= 041	-0 292 p= .225	-0.453 p= .052
too bright	0 449 p= .054	0.353 p= .139	0.050 p= 840	0.013 p= .957	-0.162 p= .508
too dark	0.071 p= .772	0.097 p= .692	0.178 p= .465	0.193 p= 429	-0.262 p= 278
too hot	0.323 p= 177	0.324 p= .176	0.226 p= .351	-0.119 p= .628	-0.287 p= .233
too cold	-0.403 p= .087	-0.477 p= 039	0.092 p= .709	0 612 p= 005	0.340 p= .154
other (other)	-0 125 p= 609	-0.153 p= .531	0.149 p= 542	0.270 p= .264	0.583 p= .009

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0.05)

Table D.2.1: Correlation, Ship D, all subjects

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	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	-0.130 p= 595	0.339 p= 155	-0.037 p= .879	**0.628** p= 004	0.478 p= .038	0.232 p= 340
ship pitch	-0.224 p= 357	0.351 p= .140	-0.182 p= .455	0.532 p= 019	0.463 p= 046	0.183 p= .454
ship Laccn	-0.051 p= .837	0.328 p= .171	0.135 p= .582	0.561 p= .012	0.510 p= 026	0.257 p= .288
ship roll	-0.082 p= .738	0.358 p= .132	-0.095 p= .699	0.294 p= .222	0.425 p= .069	0.124 p= .614
sleep quality	0 035 p= 886	0 524 p= 021	-0.021 p= .933	0.432 p= .065	0.035 p= .885	0.079 p= .749
sleep time	0.082 p= .739	0 484 p= .036	-0.017 p= .946	0.261 p= .280	-0.199 p= .415	0.003 p= .989
sleep motions	-0.013 p= 958	0.527 p= .020	-0.037 p= .882	**0.625** p= 004	0.299 p= .214	0.096 p= .696
sleep MS	-0.241 p= 319	0.336 p= 160	0.052 p= .833	0.412 p= .079	0.107 p= .662	-0.157 p= .520
sleep (other)	0.212 p= 384	0.148 p= 545	0.120 p= .825	-0.224 p= .357	-0.267 p= .269	-0.189 p= .438
mental fatigue	0.121 p= .623	**0.711** p= 001	-0.001 p= .997	0.262 p= .279	-0.087 p= .725	0.228 p= .349
physical fatigue	0.066 p= .790	0.613 p= 005	0.015 p= .952	0.288 p= .232	-0.038 p= .876	0.128 p= .601
sleepy	0.038 p= 876	0.610 p= 006	0.002 p= .993	0.333 p= 164	-0.146 p= .550	0.143 p= 559
headache	0.101 p= 679	0.583 p= 009	0.150 p= .540	**0.746** p= .000	0.353 p= .138	0.314 p= 190
apathy	-0.132 p= 591	0.407 p= 063	-0.150 p= .540	0.404 p= 087	0.308 p= .200	0.307 p= 201
tension	0.201 p= .409	0 485 p= 035	0.297 p= 218	0.470 p= 042	0.076 p= 758	0.472 p= 041
vomit	-0.384 p= 105	0 129 p= 599	-0.241 p= .320	0.256 p= 290	0.064 p= .796	0.182 p= .457
nausea	0 212 p= 383	**0.728** p= 000	0.018 p= 940	**0.820** p= 000	0.505 p= 027	0.361 p= .129
stomach awareness	0.204 p= 403	**0.829** p= 000	0.075 p= .759	**0.899** p= 000	0.511 p= 025	0.384 p= .105
symptom (other)	0 109 p= 658	-0.143 p= .558	0.236 p= .330	-0.314 p= .191	-0.340 p= 155	0.001 p= 998
MISC	0.162 p= 506	**0.747** p= .000	-0.084 p= 734	**0.813** p= .000	0 485 p= 035	0.348 p= 144
MS medicine	0.050 p= 839	0.291 p= .227	-0.365 p= .125	-0.090 p= .714	-0.137 p= .577	-0.087 p= .723
decision making	0 183 p= 454	0.278 p= 249	0.502 p= 028	0.149 p= .542	-0 228 p= .349	0.173 p= 478
concentration	0.449 p= 054	0.597 p= 007	0.372 p= .117	0.326 p= 173	-0.116 p= .637	0.107 p= 662
memory	0 297 p= 217	0.327 p= 172	0.354 p= .137	-0.052 p= 834	-0.163 p= 506	-0.082 p= .739
simple tasks	0 089 p= 717	0.248 p= 305	0.331 p= .166	0.006 p= 980	-0.331 p= 167	-0.216 p= .374
balance	0 204 p= .402	**0.670** p= .002	0.046 p= .853	**0.830** p= 000	0.522 p= 022	0.068 p= .783
carrying / moving	0 102 p= 679	0.613 p= 005	-0.093 p= .704	**0.752** p= 000	0.528 p= 020	0.060 p= .806
hand coordination	0 180 p= 461	**0.703** p= 001	-0.022 p= 928	0.589 p= .008	0.293 p= 223	0 158 p= .518
vision	0.349 p= .143	0.283 p= .241	0.274 p= .257	0.113 p= .646	0.053 p= .828	-0.016 p= .949
performance (other)	0.020 p= 935	-0.016 p= .950	-0 071 p= .772	-0.124 p= .614	-0.112 p= .649	-0.046 p= 851
more mistakes	1	0.427 p= 068	0.368 p= .121	0.359 p= .131	0.497 p= 030	0.108 p= .658
longer time	0.427 p= .068	1	0.095 p= .699	**0.716** p= .001	0.387 p= .102	0.423 p= 071
not finished	0.368 p= .121	0.095 p= 699	1	0.287 p= .234	0.031 p= .899	-0.091 p= 710
abandoned	0.359 p= 131	**0.716** p= 001	0.287 p= .234	1	0.520 p= 023	0.281 p= 243
not attempt	0.497 p= 030	0.387 p= .102	0.031 p= .899	0.520 p= 023	1	0.102 p= 679
completion (other)	0.108 p= 658	0.423 p= .071	-0.091 p= .710	0.281 p= .243	0.102 p= 679	1
cold / flu	0.242 p= .318	0.038 p= .877	0.270 p= .265	-0.240 p= .323	-0.396 p= 093	-0.216 p= .374
air quality	0 594 p= 007	0.444 p= 057	0.354 p= .137	0.261 p= .280	0.146 p= 551	-0.007 p= 976
noise	0.222 p= .361	0.537 p= 018	0.280 p= .245	0.135 p= .582	0.086 p= .726	-0.056 p= .820
vibration	-0.022 p= 928	0.580 p= 009	-0.068 p= .782	**0.627** p= 004	0.463 p= 046	0.167 p= .495
too bright	0.320 p= 181	0.268 p= .267	0.223 p= .360	0.329 p= .169	0.360 p= .130	-0.120 p= 623
too dark	0.198 p= .416	0.354 p= 137	0.246 p= .309	0.311 p= .195	-0.086 p= .727	0.322 p= .179
too hot	0.300 p= .213	0 456 p= 050	0.138 p= 573	0.418 p= .075	0.359 p= 131	-0.024 p= 921
too cold	0.208 p= 393	0.001 p= .998	0.337 p= .158	-0.245 p= .313	-0.264 p= 274	-0.183 p= .453
other (other)	0.159 p= 516	-0.169 p= 489	-0.220 p= .365	-0.112 p= .649	0.370 p= .119	-0.006 p= .982

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2.1: Correlation, Ship D, all subjects (page 8 of 9)

	cold / flu	air quality	noise	vibration
ship Vaccn	**-0.746** p= .000	-0.382 p= .107	-0.318 p= .185	0.612 p= .005
ship pitch	-0.614 p= .005	-0.351 p= .141	-0.211 p= .386	**0.673** p= .002
ship Laccn	**-0.668** p= .002	-0.237 p= .329	-0.026 p= .917	**0.784** p= .000
ship roll	-0.328 p= .171	-0.090 p= .713	0.220 p= .364	**0.761** p= .000
sleep quality	-0.166 p= .498	0.206 p= .399	0.327 p= .172	0.565 p= .012
sleep time	0 025 p= .920	0.206 p= .397	0.317 p= .187	0.380 p= .108
sleep motions	-0 454 p= .051	-0.038 p= .879	0.175 p= .475	**0.878** p= 000
sleep MS	-0.281 p= 244	-0.050 p= 839	0.201 p= .408	**0.709** p= .001
sleep (other)	**0.681** p= 001	0.567 p= .011	0.420 p= .073	-0 518 p= 023
mental fatigue	0.168 p= .493	0.378 p= .110	**0.632** p= .004	0.422 p= .072
physical fatigue	0.106 p= .665	0.308 p= .199	0.424 p= 070	0.448 p= .055
sleepy	0.178 p= .465	0.378 p= 111	0.496 p= .031	0.441 p= .059
headache	-0.347 p= 146	0.060 p= 806	0.024 p= .921	0.600 p= 007
apathy	**-0.693** p= .001	-0.337 p= .158	0.002 p= 994	**0.704** p= .001
tension	0.139 p= .571	0.448 p= .055	0.289 p= .230	0.022 p= .930
vomit	-0 613 p= 005	-0.517 p= .023	-0.316 p= .188	0.605 p= 006
nausea	-0.294 p= 222	0.039 p= .874	0.094 p= .701	0.615 p= 005
stomach awareness	-0.258 p= .286	0.142 p= .563	0.188 p= .440	**0.715** p= .001
symptom (other)	**0.757** p= 000	0.346 p= .147	0.130 p= .597	-0.591 p= 008
MISC	-0.464 p= 046	-0.011 p= 965	0.122 p= .617	**0.834** p= 000
MS medicine	0.442 p= .058	0.245 p= .311	0.234 p= 335	-0.005 p= 985
decision making	0.405 p= 085	0.365 p= 124	0.201 p= .408	-0.254 p= .295
concentration	0 589 p= .008	**0.705** p= 001	0.534 p= 019	-0.110 p= .653
memory	**0.750** p= 000	**0.705** p= .001	0.573 p= 010	-0.355 p= 136
simple tasks	0.553 p= .014	0.462 p= .047	0.389 p= .100	-0.246 p= 311
balance	-0.364 p= 126	0.114 p= .643	0.151 p= .536	**0.829** p= 000
carrying / moving	-0.412 p= 079	0.035 p= .886	0.127 p= .603	**0.876** p= .000
hand coordination	0.083 p= .734	0.406 p= 085	0.349 p= .143	0.473 p= 041
vision	0.439 p= 060	0.538 p= 018	0.266 p= 272	-0.292 p= .225
performance (other)	0.154 p= .528	-0 008 p= .973	-0 241 p= .321	-0.453 p= 052
more mistakes	0.242 p= .318	0.594 p= .007	0.222 p= .361	-0.022 p= .928
longer time	0.038 p= .877	0.444 p= .057	0.537 p= 018	0.580 p= .009
not finished	0.270 p= 265	0.354 p= .137	0.280 p= .245	-0.068 p= 782
abandoned	-0.240 p= 323	0.261 p= .280	0.135 p= .582	**0.627** p= 004
not attempt	-0.396 p= .093	0.146 p= 551	0.086 p= 726	0.463 p= .046
completion (other)	-0.216 p= 374	-0 007 p= 976	-0.056 p= 820	0.167 p= 495
cold / flu	1	**0.723** p= 000	0.505 p= .027	-0.523 p= 022
air quality	**0.723** p= .000	1	**0.699** p= 001	-0.132 p= 590
noise	0.505 p= .027	**0.699** p= 001	1	0 233 p= .337
vibration	-0.523 p= .022	-0.132 p= .590	0.233 p= .337	1
too bright	-0.015 p= .952	0.261 p= .281	0.218 p= .370	0.383 p= .105
too dark	0.261 p= 281	0.472 p= 041	0.380 p= .109	0.060 p= 807
too hot	0 055 p= 823	0.091 p= .710	0.248 p= .306	0.384 p= .104
too cold	**0.825** p= 000	**0.720** p= 001	0.583 p= 009	-0.544 p= 016
other (other)	-0.006 p= 979	0 056 p= .821	-0.315 p= .190	-0.305 p= .205

Legend ***bold** = high significance (p < 0.005),* *normal = significant (p < 0 05),* ***shade** = not significant (p > 0 05)*

Table D.2.1: Correlation, Ship D, all subjects (page 9 of 9)

	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	0.121 p= .623	-0.064 p= 796	0.025 p= .919	**-0.623 p= 004**	0.080 p= .745
ship pitch	0.099 p= .688	-0.085 p= .731	0.073 p= .767	-0.579 p= 009	0.101 p= 681
ship Laccn	0 197 p= .420	0.108 p= 659	0.123 p= .616	-0.600 p= .007	-0.238 p= 326
ship roll	0.166 p= .497	-0.065 p= .790	0.316 p= .188	-0.418 p= .075	-0.091 p= .710
sleep quality	0.325 p= .175	0.346 p= 147	-0.093 p= .706	-0.170 p= .486	-0.508 p= 026
sleep time	0.256 p= .290	0.230 p= .343	-0.068 p= .782	-0.085 p= .728	-0.535 p= 018
sleep motions	0.357 p= 134	0 245 p= .311	0.176 p= .471	-0.486 p= 035	-0.379 p= 109
sleep MS	0.393 p= .096	-0.043 p= .861	-0.017 p= .945	-0.221 p= .363	-0.194 p= 425
sleep (other)	0.022 p= .930	0.105 p= .670	0.024 p= .921	0.585 p= 008	-0.009 p= 970
mental fatigue	0.053 p= 831	0.384 p= .104	0.138 p= .573	0.105 p= .669	-0.495 p= 031
physical fatigue	0.401 p= 089	0.017 p= .946	0.082 p= .737	0.007 p= .977	-0.149 p= 544
sleepy	0.300 p= .212	0.226 p= .353	0.083 p= .736	0.066 p= 788	-0.402 p= .088
headache	0.328 p= 173	0.004 p= .988	0.209 p= 391	-0.287 p= 234	0.181 p= 457
apathy	0.176 p= 471	-0.194 p= .427	0.033 p= .892	-0.513 p= .025	-0.112 p= 648
tension	-0.013 p= 958	0.165 p= .499	0.034 p= .889	0.278 p= .249	0.146 p= .550
vomit	0.151 p= 536	0.017 p= 945	-0.080 p= 745	**-0.744 p= .000**	-0.318 p= .184
nausea	0 191 p= .433	0.085 p= 729	**0.633 p= 004**	-0.417 p= .076	-0.032 p= 896
stomach awareness	0.279 p= 248	0.233 p= .336	0.501 p= .029	-0.334 p= .163	-0.091 p= .710
symptom (other)	-0.076 p= .758	0.031 p= .901	0.136 p= .578	0.516 p= 024	0.199 p= 414
MISC	0.169 p= 490	0.259 p= 283	0.367 p= 122	-0 500 p= 029	-0.198 p= 417
MS medicine	-0.249 p= 304	-0 030 p= .903	0.166 p= .498	0.257 p= .287	0 245 p= .313
decision making	-0 054 p= 826	0.261 p= .280	0.010 p= .967	0.448 p= .054	-0.056 p= 819
concentration	0.085 p= 730	0 285 p= 237	0.198 p= 416	0.586 p= .008	-0.036 p= .883
memory	-0.007 p= 977	0.245 p= 312	0.050 p= .839	**0.747 p= 000**	0.085 p= 730
simple tasks	-0.158 p= .517	0.189 p= .439	-0.003 p= .989	0.523 p= .022	-0.084 p= 731
balance	0.449 p= .054	0.071 p= .772	0.323 p= .177	-0.403 p= .087	-0.125 p= 609
carrying / moving	0 353 p= .139	0.097 p= .692	0.324 p= 176	-0.477 p= 039	-0.153 p= 531
hand coordination	0.050 p= 840	0.178 p= .465	0.226 p= .351	0 092 p= 709	0.149 p= 542
vision	0.013 p= 957	0.193 p= 429	-0.119 p= 628	0 612 p= 005	0.270 p= 264
performance (other)	-0.162 p= 508	-0 262 p= 278	-0.287 p= .233	0.340 p= .154	0.583 p= 009
more mistakes	0.320 p= 181	0.198 p= 416	0.300 p= .213	0.208 p= .393	0.159 p= .516
longer time	0.268 p= .267	0.354 p= .137	0.456 p= 050	0.001 p= 998	-0.169 p= 489
not finished	0.223 p= 360	0.246 p= 309	0.138 p= .573	0.337 p= .158	-0.220 p= .365
abandoned	0.329 p= .169	0.311 p= .195	0.418 p= 075	-0.245 p= .313	-0.112 p= .649
not attempt	0.360 p= .130	-0.086 p= .727	0.359 p= .131	-0.264 p= 274	0.370 p= .119
completion (other)	-0 120 p= 623	0.322 p= .179	-0.024 p= .921	-0.183 p= .453	-0.006 p= .982
cold / flu	-0.015 p= 952	0.261 p= .281	0.055 p= 823	**0.825 p= 000**	-0.006 p= 979
air quality	0.261 p= 281	0.472 p= 041	0.091 p= 710	**0.720 p= 001**	0.056 p= 821
noise	0.218 p= .370	0 380 p= .109	0.248 p= 306	0.583 p= .009	-0.315 p= 190
vibration	0.383 p= .105	0.060 p= .807	0.384 p= .104	-0.544 p= .016	-0.305 p= .205
too bright	1	-0.162 p= 508	0.155 p= .527	-0.064 p= .793	0.043 p= .862
too dark	-0.162 p= .508	1	-0.127 p= .604	0.308 p= .200	-0.503 p= 028
too hot	0.155 p= .527	-0.127 p= 604	1	-0.236 p= .332	-0.071 p= 774
too cold	-0.064 p= .793	0.308 p= .200	-0.236 p= .332	1	0.081 p= 743
other (other)	0 043 p= .862	-0 503 p= 028	-0.071 p= .774	0.081 p= .743	1

Legend bold = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0.05)

Table D.2.2: Correlation, Ship D, no MS group (page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914** p= .000	**0.766** p= 000	0.434 p= .063
ship pitch	**0.914** p= .000	1	**0.753** p= 000	**0.638** p= 003
ship Laccn	**0.766** p= 000	**0.753** p= .000	1	**0.775** p= .000
ship roll	0.434 p= 063	**0.638** p= .003	**0.775** p= .000	1
sleep quality	0.087 p= .724	0.153 p= .531	0.301 p= .210	0.371 p= .118
sleep time	-0.055 p= 824	0.006 p= .980	0.082 p= .737	0.166 p= .497
sleep motions	0.486 p= 035	0.478 p= .039	**0.644** p= 003	0.557 p= .013
sleep MS	-0.339 p= .156	-0.268 p= .268	-0.293 p= .223	-0.035 p= .886
sleep (other)	-0.607 p= 006	-0.573 p= 010	**-0.639** p= .003	-0.433 p= 064
mental fatigue	-0.069 p= .778	-0.022 p= .930	0.114 p= .642	0.193 p= .428
physical fatigue	-0.166 p= .498	0.043 p= .861	-0.024 p= .922	0.375 p= .114
sleepy	-0.203 p= 405	-0.081 p= 741	-0.007 p= .977	0.258 p= 286
headache	-0.042 p= .866	0.105 p= 668	-0.228 p= .349	0.129 p= .600
apathy	0 587 p= 008	0.495 p= .031	0.509 p= 026	0.350 p= .142
tension	0.008 p= 974	0.041 p= .866	-0.151 p= 536	-0.054 p= .826
vomit	no data	no data	no data	no data
nausea	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data
symptom (other)	-0.449 p= .054	-0.292 p= 225	**-0.655** p= 002	-0.293 p= 224
MISC	0.229 p= .346	0.378 p= .111	0.097 p= .693	0.336 p= .160
MS medicine	-0.063 p= 796	0.172 p= .482	-0.159 p= 516	0.243 p= 316
decision making	-0.217 p= 371	-0.278 p= 249	-0.289 p= .230	-0.251 p= .300
concentration	-0.186 p= .445	-0.187 p= .444	-0.253 p= .296	-0.058 p= .814
memory	-0.331 p= 166	-0.184 p= 452	-0.265 p= .273	0.111 p= .650
simple tasks	-0.345 p= 146	-0.171 p= 483	-0.428 p= .068	-0.002 p= .995
balance	**0.638** p= .003	**0.762** p= .000	**0.745** p= 000	**0.781** p= .000
carrying / moving	0.584 p= 009	**0.801** p= .000	0.614 p= .005	**0.805** p= .000
hand coordination	0.092 p= .708	0.383 p= .105	0.069 p= .778	0 506 p= 027
vision	0.201 p= 409	0.232 p= .340	0.021 p= .931	0.060 p= .808
performance (other)	-0.435 p= .062	-0.288 p= .232	**-0.684** p= 001	-0.276 p= .253
more mistakes	-0.213 p= .382	-0.138 p= 573	-0.126 p= .606	0.130 p= 596
longer time	0.101 p= .681	0.148 p= .546	-0.025 p= .919	0.171 p= .484
not finished	-0.350 p= .142	-0.548 p= 015	-0.253 p= .296	-0.409 p= .082
abandoned	0 011 p= 964	-0 209 p= .390	0.157 p= .520	-0.063 p= .797
not attempt	0.121 p= .622	0.002 p= 992	0.029 p= .906	-0.065 p= .792
completion (other)	-0.018 p= .940	-0.197 p= .419	-0.172 p= .480	-0.384 p= 105
cold / flu	**-0.695** p= 001	-0.424 p= 071	**-0.650** p= .003	-0.152 p= 534
air quality	-0.317 p= .187	-0.131 p= .593	-0.232 p= .339	0.156 p= .524
noise	-0 483 p= .036	-0.375 p= .114	-0.290 p= .228	0.011 p= .963
vibration	0.590 p= .008	**0.658** p= .002	**0.688** p= .001	**0.698** p= .001
too bright	0.203 p= .406	0.308 p= .199	0.420 p= .073	0.592 p= 008
too dark	-0.238 p= 327	-0.142 p= 562	-0.254 p= .295	-0.170 p= 488
too hot	-0.320 p= 182	*0.013 p= 959*	-0.211 p= .386	0.318 p= .185
too cold	-0.175 p= .474	-0.030 p= 903	-0.158 p= .518	0.143 p= .559
other (other)	0.162 p= .507	0.206 p= .397	-0.105 p= .670	0.000 p= .999

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 2 2: Correlation, Ship D, no MS group (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0 087 p= .724	-0.055 p= .824	0.486 p= 035	-0.339 p= .156	-0 607 p= 006
ship pitch	0.153 p= .531	0.006 p= .980	0.478 p= 039	-0.268 p= .268	-0.573 p= .010
ship Laccn	0.301 p= .210	0.082 p= .737	**0.644** p= 003	-0.293 p= .223	**-0.639** p= .003
ship roll	0.371 p= .118	0.166 p= 497	0 557 p= .013	-0.035 p= .886	-0.433 p= .064
sleep quality	1	**0.863** p= .000	**0.765** p= .000	0.086 p= .725	0.261 p= .280
sleep time	**0.863** p= .000	1	0.450 p= .053	0.219 p= .369	0.426 p= .069
sleep motions	**0.765** p= .000	0.450 p= .053	1	-0.215 p= .377	-0.262 p= .278
sleep MS	0.086 p= .725	0.219 p= 369	-0.215 p= .377	1	0.614 p= 005
sleep (other)	0.261 p= .280	0.426 p= .069	-0.262 p= .278	0.614 p= .005	1
mental fatigue	**0.844** p= 000	**0.834** p= 000	0.424 p= .071	0.372 p= .117	0.483 p= 036
physical fatigue	**0.648** p= 003	**0.630** p= 004	0.300 p= .213	0.514 p= 024	0.562 p= 012
sleepy	**0.717** p= 001	**0.686** p= 001	0.313 p= .192	**0.626** p= .004	0.602 p= 006
headache	-0.284 p= .238	-0.291 p= .227	-0.249 p= .304	0.044 p= .859	0.086 p= 727
apathy	0.239 p= 324	0.041 p= .867	0 495 p= 031	-0.336 p= .160	-0.459 p= 048
tension	-0.030 p= 902	0.099 p= 687	-0.211 p= .385	0.046 p= .851	0.107 p= 663
vomit	no data	no data	no data	no data	no data
nausea	no data	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data	no data
symptom (other)	-0.555 p= 014	-0.362 p= .128	**-0.661** p= 002	0.161 p= .511	0.269 p= 265
MISC	0 141 p= 565	0.002 p= 992	0.200 p= .413	0.125 p= .609	0.043 p= .861
MS medicine	0.389 p= 100	0.405 p= 085	0.209 p= .391	0.327 p= .172	0.258 p= 286
decision making	-0.372 p= 117	-0.200 p= 411	-0.520 p= 023	-0.021 p= .932	0 073 p= .768
concentration	0.101 p= 681	0.262 p= 279	-0.232 p= .339	0.388 p= .100	0.439 p= .060
memory	-0.136 p= .580	-0.042 p= 863	-0.341 p= .154	0.095 p= .699	0.215 p= .376
simple tasks	-0.160 p= .514	0.068 p= .781	-0.413 p= .079	0.345 p= 148	0.264 p= 275
balance	0.411 p= .081	0.149 p= 542	**0.689** p= 001	-0.233 p= .338	-0.410 p= .081
carrying / moving	0.326 p= 174	0.079 p= 749	0.588 p= .008	-0.192 p= .431	-0 408 p= 083
hand coordination	0.125 p= 609	0.031 p= .898	0.113 p= .644	-0.023 p= .925	-0.031 p= 901
vision	-0.001 p= 997	0.004 p= .988	0.001 p= .997	-0.111 p= .651	0.044 p= 859
performance (other)	-0.409 p= .082	-0.225 p= 355	-0.588 p= 008	0.185 p= .448	0.305 p= 204
more mistakes	-0.298 p= .216	-0.273 p= 258	-0.218 p= .369	0.044 p= 859	0.100 p= 684
longer time	0.255 p= 291	0.158 p= .519	0.092 p= .708	0.184 p= 451	0.338 p= 157
not finished	-0.229 p= 345	-0.106 p= .667	-0.220 p= .365	0.075 p= .760	0.193 p= 430
abandoned	0 144 p= 557	-0 049 p= 842	0.240 p= .323	0.311 p= .195	0.145 p= .554
not attempt	-0.136 p= .578	-0.247 p= .308	0.092 p= .709	-0.267 p= .269	-0.056 p= .819
completion (other)	-0.201 p= .408	-0.215 p= 377	-0.097 p= .693	-0.295 p= .219	-0.075 p= 760
cold / flu	-0.106 p= .664	0.053 p= 831	-0.498 p= 030	0.390 p= .098	0 574 p= 010
air quality	0.251 p= .300	0.354 p= .137	-0.150 p= .541	**0.664** p= 002	0.591 p= 008
noise	0.142 p= 562	0.101 p= .680	-0.139 p= .570	0.320 p= .182	0.520 p= 023
vibration	0.518 p= 023	0.238 p= .326	**0.686** p= 001	-0.344 p= .150	-0.450 p= 053
too bright	0.280 p= .246	-0.026 p= .915	0.421 p= 073	-0.170 p= .486	-0.255 p= 292
too dark	-0.103 p= .676	-0.095 p= .700	-0.309 p= 198	0.510 p= 026	0.356 p= 135
too hot	0.184 p= .451	0.123 p= .617	-0.030 p= .902	0.453 p= .051	0.230 p= .343
too cold	0.144 p= 557	0.075 p= .761	-0.051 p= .835	0.568 p= .011	0.424 p= .070
other (other)	-0.574 p= 010	-0.437 p= .061	-0.420 p= .073	-0.045 p= .856	-0.159 p= .515

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0\ 05$), shade = not significant ($p > 0.05$)

Table D.2.2 Correlation, Ship D, no MS group (page 3 of 9)

	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	-0.069 p= .778	-0.156 p= .498	-0.203 p= .405	-0.042 p= .866	0.587 p= .008	0.008 p= .974
ship pitch	-0.022 p= .930	0.043 p= .861	-0.081 p= .741	0.105 p= .668	0.495 p= .031	0.041 p= .866
ship Laccn	0.114 p= .642	-0.024 p= .922	-0.007 p= .977	-0.228 p= .349	0.509 p= .026	-0.151 p= .538
ship roll	0.193 p= .428	0.375 p= .114	0.258 p= .286	0.129 p= .600	0.350 p= .142	-0.054 p= .826
sleep quality	**0.844** p= .000	**0.648** p= .003	**0.717** p= .001	-0.284 p= .238	0.239 p= .324	-0.030 p= .902
sleep time	**0.834** p= .000	**0.630** p= .004	**0.686** p= .001	-0.291 p= .227	0.041 p= .867	0.099 p= .687
sleep motions	0.424 p= .071	0.300 p= .213	0.313 p= .192	-0.249 p= .304	0.495 p= .031	-0.211 p= .385
sleep MS	0.372 p= .117	0.514 p= .024	**0.626** p= .004	0.044 p= .859	-0.336 p= .160	0.046 p= .851
sleep (other)	0.483 p= .036	0.562 p= .012	0.602 p= .006	0.086 p= .727	-0.459 p= .048	0.107 p= .663
mental fatigue	1	**0.729** p= .000	**0.833** p= .000	-0.222 p= .362	0.159 p= .517	0.165 p= .500
physical fatigue	**0.729** p= .000	1	**0.875** p= .000	0.203 p= .404	-0.042 p= .863	0.211 p= .385
sleepy	**0.833** p= .000	**0.875** p= .000	1	-0.077 p= .753	-0.041 p= .867	0.147 p= .549
headache	-0.222 p= .362	0.203 p= .404	-0.077 p= .753	1	-0.059 p= .811	0.529 p= .020
apathy	0.159 p= .517	-0.042 p= .863	-0.041 p= .867	-0.059 p= .811	1	0.167 p= .494
tension	0.165 p= .500	0.211 p= .385	0.147 p= .549	0.529 p= .020	0.167 p= .494	1
vomit	no data	no data	no data	no data	no data	no data
nausea	no data	no data	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data	no data	no data
symptom (other)	-0.480 p= .037	0.012 p= .961	-0.232 p= .339	0.595 p= .007	-0.604 p= .006	0.208 p= .392
MISC	0.122 p= .620	0.313 p= .192	0.232 p= .340	0.483 p= .036	0.299 p= .214	0.213 p= .381
MS medicine	0.334 p= .162	0.564 p= .012	0.487 p= .035	0.297 p= .217	-0.111 p= .651	0.068 p= .783
decision making	-0.136 p= .580	-0.132 p= .590	-0.169 p= .489	0.445 p= .056	-0.241 p= .321	0.270 p= .263
concentration	0.337 p= .159	0.405 p= .085	0.508 p= .026	0.374 p= .114	0.010 p= .968	0.459 p= .048
memory	-0.002 p= .994	0.312 p= .193	0.076 p= .757	**0.720** p= .001	-0.220 p= .366	0.342 p= .151
simple tasks	-0.004 p= .988	0.297 p= .217	0.143 p= .560	**0.623** p= .004	-0.274 p= .256	0.338 p= .157
balance	0.159 p= .515	0.337 p= .159	0.183 p= .453	0.088 p= .720	0.435 p= .063	-0.024 p= .923
carrying / moving	0.070 p= .777	0.301 p= .210	0.126 p= .607	0.319 p= .184	0.350 p= .141	0.024 p= .921
hand coordination	0.099 p= .687	0.518 p= .023	0.231 p= .342	**0.778** p= .000	0.117 p= .634	0.490 p= .033
vision	0.041 p= .868	0.070 p= .774	-0.008 p= .973	**0.698** p= .001	0.139 p= .570	0.487 p= .034
performance (other)	-0.304 p= .205	0.138 p= .572	-0.065 p= .791	**0.715** p= .001	-0.396 p= .093	0.412 p= .079
more mistakes	-0.175 p= .474	0.134 p= .585	-0.093 p= .705	0.425 p= .069	-0.194 p= .427	0.017 p= .946
longer time	0.442 p= .058	0.490 p= .033	0.411 p= .080	0.378 p= .111	0.390 p= .099	0.154 p= .528
not finished	-0.062 p= .799	-0.217 p= .372	-0.197 p= .419	0.074 p= .763	-0.204 p= .403	-0.007 p= .976
abandoned	0.217 p= .372	0.042 p= .863	0.350 p= .142	-0.161 p= .510	0.096 p= .696	0.047 p= .849
not attempt	-0.142 p= .562	-0.153 p= .533	-0.253 p= .296	0.211 p= .385	-0.012 p= .961	-0.187 p= .444
completion (other)	-0.098 p= .691	-0.321 p= .180	-0.246 p= .310	0.092 p= .707	0.125 p= .611	0.087 p= .724
cold / flu	-0.024 p= .923	0.386 p= .103	0.248 p= .305	0.437 p= .061	**-0.667** p= .002	0.164 p= .503
air quality	0.511 p= .025	**0.655** p= .002	**0.695** p= .001	0.365 p= .125	-0.085 p= .728	0.340 p= .154
noise	0.258 p= .285	0.372 p= .117	0.371 p= .118	0.361 p= .129	-0.019 p= .940	0.060 p= .807
vibration	0.306 p= .203	0.217 p= .372	0.177 p= .469	-0.098 p= .691	**0.800** p= .000	-0.046 p= .852
too bright	0.161 p= .509	0.348 p= .144	0.248 p= .307	0.101 p= .679	0.499 p= .029	0.077 p= .755
too dark	0.203 p= .404	0.233 p= .337	0.291 p= .227	0.141 p= .566	-0.332 p= .164	-0.020 p= .936
too hot	0.223 p= .358	**0.623** p= .004	0.497 p= .030	0.240 p= .322	-0.146 p= .551	0.092 p= .709
too cold	0.304 p= .206	0.460 p= .047	0.395 p= .094	0.417 p= .076	0.003 p= .991	0.266 p= .271
other (other)	-0.338 p= .157	-0.074 p= .764	-0.320 p= .182	0.522 p= .022	0.080 p= .745	0.302 p= .209

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), **shade** = not significant ($p > 0.05$)

Table D 2.2· Correlation, Ship D, no MS group (page 4 of 9)

	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	no data	no data	no data	-0.449 p= .054	0.229 p= .346	-0.063 p= .796
ship pitch	no data	no data	no data	-0.292 p= .225	0.378 p= .111	0.172 p= .482
ship Laccn	no data	no data	no data	**-0.655** p= .002	0.097 p= .693	-0.159 p= .516
ship roll	no data	no data	no data	-0.293 p= .224	0.336 p= .160	0.243 p= .316
sleep quality	no data	no data	no data	-0.555 p= 014	0.141 p= .565	0.389 p= .100
sleep time	no data	no data	no data	-0.362 p= .128	0.002 p= .992	0.405 p= .085
sleep motions	no data	no data	no data	**-0.661** p= .002	0.200 p= .413	0.209 p= .391
sleep MS	no data	no data	no data	0.161 p= .511	0.125 p= .609	0.327 p= 172
sleep (other)	no data	no data	no data	0.269 p= .265	0.043 p= .861	0.258 p= 286
mental fatigue	no data	no data	no data	-0.480 p= 037	0.122 p= .620	0.334 p= 162
physical fatigue	no data	no data	no data	0.012 p= .961	0.313 p= 192	0.564 p= 012
sleepy	no data	no data	no data	-0.232 p= .339	0.232 p= 340	0.487 p= 035
headache	no data	no data	no data	0.595 p= 007	0.483 p= 036	0.297 p= .217
apathy	no data	no data	no data	-0.604 p= .006	0.299 p= 214	-0.111 p= .651
tension	no data	no data	no data	0.208 p= .392	0.213 p= .381	0.068 p= 783
vomit	1	no data	no data	no data	no data	no data
nausea	no data	1	no data	no data	no data	no data
stomach awareness	no data	no data	1	no data	no data	no data
symptom (other)	no data	no data	no data	1	0.007 p= .976	0.166 p= 497
MISC	no data	no data	no data	0.007 p= .976	1	**0.691** p= 001
MS medicine	no data	no data	no data	0.166 p= .497	**0.691** p= 001	1
decision making	no data	no data	no data	0.310 p= .196	-0.230 p= .344	-0.198 p= 416
concentration	no data	no data	no data	0.092 p= .709	0.293 p= .223	0.340 p= .155
memory	no data	no data	no data	0.490 p= 033	-0.019 p= .938	0 070 p= 774
simple tasks	no data	no data	no data	0.598 p= 007	0.127 p= .603	0.400 p= 090
balance	no data	no data	no data	-0.369 p= .120	0.554 p= 014	0.364 p= 125
carrying / moving	no data	no data	no data	-0.134 p= .586	**0.641** p= 003	0.482 p= 037
hand coordination	no data	no data	no data	0.355 p= 136	0.508 p= 026	0 469 p= .043
vision	no data	no data	no data	0.073 p= 766	0.444 p= 057	0.209 p= 392
performance (other)	no data	no data	no data	**0.896** p= 000	0.117 p= .632	0.289 p= 229
more mistakes	no data	no data	no data	0.428 p= .067	0.309 p= 198	0.093 p= .705
longer time	no data	no data	no data	-0.043 p= .860	0.551 p= 014	0.297 p= .217
not finished	no data	no data	no data	0.028 p= .909	-0.370 p= .119	-0.403 p= .087
abandoned	no data	no data	no data	-0.441 p= .059	-0.026 p= .915	-0.246 p= 309
not attempt	no data	no data	no data	0.020 p= 936	-0.064 p= .794	-0.201 p= .410
completion (other)	no data	no data	no data	0.011 p= .964	-0.093 p= .706	-0.214 p= .380
cold / flu	no data	no data	no data	**0.759** p= 000	0.082 p= .740	0.372 p= 117
air quality	no data	no data	no data	0.153 p= .533	0.386 p= 102	0.420 p= .074
noise	no data	no data	no data	0.073 p= .767	0.228 p= .348	0.131 p= .593
vibration	no data	no data	no data	-0.596 p= .007	0.325 p= .174	0 112 p= .648
too bright	no data	no data	no data	-0.246 p= .310	0.218 p= 371	-0.060 p= .806
too dark	no data	no data	no data	0.088 p= .721	-0.022 p= .930	0.075 p= .760
too hot	no data	no data	no data	0.366 p= .123	0.294 p= 222	0.565 p= .012
too cold	no data	no data	no data	0.149 p= .541	0.382 p= .106	0.205 p= .400
other (other)	no data	no data	no data	0.456 p= 049	0.359 p= .131	0.074 p= 763

Legend **bold** = high significance ($p < 0\ 005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0\ 05$)

Table D.2.2: Correlation, Ship D, no MS group (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	-0.217 p= .371	-0.186 p= .445	-0.331 p= .166	-0.345 p= .148
ship pitch	-0.278 p= .249	-0.187 p= .444	-0.184 p= .452	-0.171 p= .483
ship Laccn	-0.289 p= 230	-0.253 p= .296	-0.265 p= .273	-0.428 p= .068
ship roll	-0.251 p= .300	-0.058 p= .814	0.111 p= .650	-0.002 p= .995
sleep quality	-0.372 p= .117	0.101 p= .681	-0.136 p= .580	-0.160 p= .514
sleep time	-0.200 p= .411	0.262 p= .279	-0.042 p= .863	0.068 p= .781
sleep motions	-0.520 p= .023	-0.232 p= .339	-0.341 p= .154	-0.413 p= .079
sleep MS	-0.021 p= .932	0.388 p= .100	0.095 p= .699	0.345 p= .148
sleep (other)	0.073 p= .768	0.439 p= .060	0.215 p= .378	0.264 p= .275
mental fatigue	-0.136 p= .580	0.337 p= .159	-0.002 p= .994	-0.004 p= .988
physical fatigue	-0 132 p= 590	0 405 p= .085	0.312 p= .193	0.297 p= .217
sleepy	-0.169 p= 489	0.508 p= .026	0.076 p= .757	0.143 p= .560
headache	0.445 p= .056	0.374 p= .114	**0.720** p= 001	**0.623** p= .004
apathy	-0.241 p= .321	0.010 p= .968	-0.220 p= .366	-0.274 p= .256
tension	0.270 p= .263	0.459 p= .048	0.342 p= .151	0.338 p= .157
vomit	no data	no data	no data	no data
nausea	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data
symptom (other)	0.310 p= 196	0.092 p= .709	0.490 p= 033	0.598 p= .007
MISC	-0.230 p= 344	0.293 p= 223	-0.019 p= .938	0.127 p= 603
MS medicine	-0.198 p= .416	0.340 p= .155	0.070 p= .774	0.400 p= 090
decision making	1	0.482 p= 037	**0.754** p= 000	0 589 p= 008
concentration	0 482 p= 037	1	0.476 p= .039	**0.620** p= .005
memory	**0.754** p= 000	0.476 p= 039	1	**0.788** p= .000
simple tasks	0.589 p= .008	**0.620** p= 005	**0.788** p= .000	1
balance	-0.446 p= .056	-0.121 p= .621	-0.174 p= 476	-0.258 p= 287
carrying / moving	-0.356 p= .135	-0.152 p= 533	-0.034 p= .891	-0.065 p= 791
hand coordination	0.151 p= 538	0.288 p= .232	0.604 p= 006	0.533 p= 019
vision	0.520 p= 023	0.503 p= 028	0.532 p= .019	0.463 p= 046
performance (other)	0.482 p= 037	0.426 p= .069	**0.664** p= 002	**0.818** p= .000
more mistakes	0.097 p= .693	-0.032 p= 898	0.217 p= .372	0.080 p= .744
longer time	0.137 p= .576	0.496 p= 031	0.292 p= 225	0.241 p= .321
not finished	0.540 p= 017	0 167 p= .494	0.324 p= .176	0.222 p= 361
abandoned	0.035 p= .888	0.271 p= .261	-0.188 p= .441	-0.285 p= .237
not attempt	0.119 p= 628	-0.236 p= .331	0.039 p= .874	-0.279 p= .248
completion (other)	0.424 p= .071	0.288 p= .231	0.114 p= .641	0.188 p= .440
cold / flu	0.257 p= .288	0.241 p= .320	0.562 p= 012	**0.628** p= 004
air quality	0.232 p= .339	**0.661** p= 002	0.454 p= 051	0.567 p= 011
noise	0.307 p= .201	0.532 p= .019	0.587 p= .008	0.477 p= 039
vibration	-0.344 p= .149	-0.107 p= .664	-0.145 p= .554	-0.292 p= 224
too bright	-0.112 p= .647	-0.095 p= .699	0.123 p= 615	-0.201 p= .408
too dark	0.387 p= .102	0.185 p= 448	0.324 p= .176	0.274 p= .257
too hot	-0.159 p= .517	0.177 p= 469	0.297 p= 216	0.488 p= .034
too cold	0 068 p= 782	0.128 p= .602	0.325 p= .175	0.242 p= .318
other (other)	0.256 p= .290	0.114 p= 641	0.210 p= .388	0.263 p= .277

Legend **bold** = high significance (p < 0.005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2 2: Correlation, Ship D, no MS group (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	**0.638** p= .003	0.584 p= .009	0.092 p= .708	0.201 p= .409	-0.435 p= .062
ship pitch	**0.762** p= .000	**0.801** p= .000	0.383 p= .105	0.232 p= .340	-0.288 p= .232
ship Laccn	**0.745** p= .000	0.614 p= .005	0.069 p= .778	0.021 p= .931	**-0.684** p= .001
ship roll	**0.781** p= .000	**0.805** p= .000	0.506 p= .027	0.060 p= .806	-0.276 p= .253
sleep quality	0.411 p= .081	0.326 p= .174	0.125 p= .609	-0.001 p= .997	-0.409 p= .082
sleep time	0.149 p= .542	0.079 p= .749	0.031 p= .898	0.004 p= .986	-0.225 p= .355
sleep motions	**0.689** p= .001	0.588 p= .008	0.113 p= .644	0.001 p= .997	-0.588 p= .008
sleep MS	-0.233 p= .338	-0.192 p= .431	-0.023 p= .925	-0.111 p= .651	0.185 p= .448
sleep (other)	-0.410 p= .081	-0.408 p= .083	-0.031 p= .901	0.044 p= .859	0.305 p= .204
mental fatigue	0.159 p= .515	0.070 p= .777	0.099 p= .687	0.041 p= .868	-0.304 p= .205
physical fatigue	0.337 p= .159	0.301 p= .210	0.518 p= .023	0.070 p= .774	0.138 p= .572
sleepy	0.183 p= .453	0.126 p= .607	0.231 p= .342	-0.008 p= .973	-0.065 p= .791
headache	0.088 p= .720	0.319 p= .184	**0.778** p= .000	**0.698** p= .001	**0.715** p= .001
apathy	0.435 p= .063	0.350 p= .141	0.117 p= .634	0.139 p= .570	-0.396 p= .093
tension	-0.024 p= .923	0.024 p= .921	0.490 p= .033	0.487 p= .034	0.412 p= .079
vomit	no data	no data	no data	no data	no data
nausea	no data	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data	no data
symptom (other)	-0.369 p= .120	-0.134 p= .586	0.355 p= .136	0.073 p= .766	**0.896** p= .000
MISC	0.554 p= .014	**0.641** p= .003	0.508 p= .026	0.444 p= .057	0.117 p= .632
MS medicine	0.364 p= .125	0.482 p= .037	0.469 p= .043	0.209 p= .392	0.289 p= .229
decision making	-0.446 p= .056	-0.356 p= .135	0.151 p= .538	0.520 p= .023	0.482 p= .037
concentration	-0.121 p= .621	-0.152 p= .533	0.288 p= .232	0.503 p= .028	0.426 p= .069
memory	-0.174 p= .476	-0.034 p= .891	0.604 p= .006	0.532 p= .019	**0.664** p= .002
simple tasks	-0.258 p= .287	-0.065 p= .791	0.533 p= .019	0.463 p= .046	**0.818** p= .000
balance	1	**0.858** p= .000	0.424 p= .071	0.113 p= .646	-0.364 p= .125
carrying / moving	**0.858** p= .000	1	**0.642** p= .003	0.263 p= .277	-0.135 p= .583
hand coordination	0.424 p= .071	**0.642** p= .003	1	0.556 p= .013	0.509 p= .026
vision	0.113 p= .646	0.263 p= .277	0.556 p= .013	1	0.323 p= .178
performance (other)	-0.364 p= .125	-0.135 p= .583	0.509 p= .026	0.323 p= .178	1
more mistakes	0.082 p= .738	0.189 p= .439	0.279 p= .247	0.023 p= .927	0.251 p= .300
longer time	0.181 p= .457	0.265 p= .273	0.422 p= .072	0.369 p= .120	0.156 p= .524
not finished	-0.496 p= .031	-0.592 p= .008	-0.266 p= .270	0.278 p= .250	0.083 p= .734
abandoned	-0.026 p= .915	-0.204 p= .402	-0.277 p= .251	0.084 p= .731	-0.337 p= .158
not attempt	-0.045 p= .855	0.075 p= .760	0.007 p= .978	0.086 p= .726	-0.115 p= .638
completion (other)	-0.289 p= .230	-0.298 p= .216	-0.031 p= .899	0.366 p= .124	0.187 p= .443
cold / flu	-0.325 p= .174	-0.103 p= .674	0.402 p= .088	0.107 p= .661	**0.739** p= .000
air quality	-0.098 p= .691	0.085 p= .729	0.466 p= .044	0.400 p= .090	0.351 p= .140
noise	-0.185 p= .448	-0.144 p= .556	0.292 p= .225	0.428 p= .067	0.286 p= .235
vibration	**0.690** p= .001	**0.670** p= .002	0.293 p= .223	0.025 p= .919	-0.461 p= .047
too bright	0.511 p= .025	0.510 p= .026	0.419 p= .074	-0.031 p= .901	-0.177 p= .468
too dark	-0.290 p= .229	-0.181 p= .458	0.128 p= .601	0.239 p= .325	0.136 p= .579
too hot	0.164 p= .502	0.282 p= .242	0.567 p= .011	-0.120 p= .626	0.445 p= .056
too cold	-0.024 p= .923	0.187 p= .444	0.362 p= .127	0.273 p= .258	0.201 p= .409
other (other)	0.060 p= .807	0.180 p= .460	0.374 p= .115	0.238 p= .326	0.404 p= .086

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 2.2. Correlation, Ship D, no MS group (page 7 of 9)

	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	-0.213 p= .382	0.101 p= .681	-0.350 p= .142	0.011 p= .964	0.121 p= .622	-0.018 p= .940
ship pitch	-0.138 p= .573	0.148 p= .546	-0.548 p= .015	-0.209 p= .390	0.002 p= .992	-0.197 p= .419
ship Laccn	-0.126 p= .606	-0.025 p= .919	-0.253 p= .296	0.157 p= .520	0.029 p= .906	-0.172 p= .480
ship roll	0.130 p= .596	0.171 p= .484	-0.409 p= .082	-0.063 p= .797	-0.065 p= .792	-0.384 p= .105
sleep quality	-0.298 p= .216	0.255 p= .291	-0.229 p= .345	0.144 p= .557	-0.136 p= .578	-0.201 p= .408
sleep time	-0.273 p= .258	0.158 p= .519	-0.106 p= .667	-0.049 p= .842	-0.247 p= .308	-0.215 p= .377
sleep motions	-0.218 p= .369	0.092 p= .708	-0.220 p= .365	0.240 p= .323	0.092 p= .709	-0.097 p= .693
sleep MS	0.044 p= .859	0.184 p= .451	0.075 p= .760	0.311 p= .195	-0.267 p= .269	-0.295 p= .219
sleep (other)	0.100 p= .684	0.338 p= .157	0.193 p= .430	0.145 p= .554	-0.056 p= .819	-0.075 p= .760
mental fatigue	-0.175 p= .474	0.442 p= .058	-0.062 p= .799	0.217 p= .372	-0.142 p= .562	-0.098 p= .691
physical fatigue	0.134 p= .585	0.490 p= .033	-0.217 p= .372	0.042 p= .863	-0.153 p= .533	-0.321 p= .180
sleepy	-0.093 p= .705	0.411 p= .080	-0.197 p= .419	0.350 p= .142	-0.253 p= .296	-0.246 p= .310
headache	0.425 p= .069	0.378 p= .111	0.074 p= .763	-0.161 p= .510	0.211 p= .385	0.092 p= .707
apathy	-0.194 p= .427	0.390 p= .099	-0.204 p= .403	0.096 p= .696	-0.012 p= .961	0.125 p= .611
tension	0.017 p= .946	0.154 p= .528	-0.007 p= .976	0.047 p= .849	-0.187 p= .444	0.087 p= .724
vomit	no data	no data	no data	no data	no data	no data
nausea	no data	no data	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data	no data	no data
symptom (other)	0.428 p= .067	-0.043 p= .860	0.028 p= .909	-0.441 p= .059	0.020 p= .936	0.011 p= .964
MISC	0.309 p= .198	0.551 p= .014	-0.370 p= .119	-0.026 p= .915	-0.064 p= .794	-0.093 p= .706
MS medicine	0.093 p= .705	0.297 p= .217	-0.403 p= .087	-0.246 p= .309	-0.201 p= .410	-0.214 p= .380
decision making	0.097 p= .693	0.137 p= .576	0.540 p= .017	0.035 p= .888	0.119 p= .628	0.424 p= .071
concentration	-0.032 p= .898	0.496 p= .031	0.167 p= .494	0.271 p= .261	-0.236 p= .331	0.288 p= .231
memory	0.217 p= .372	0.292 p= .225	0.324 p= .176	-0.188 p= .441	0.039 p= .874	0.114 p= .641
simple tasks	0.080 p= .744	0.241 p= .321	0.222 p= .361	-0.285 p= .237	-0.279 p= .248	0.188 p= .440
balance	0.082 p= .738	0.181 p= .457	-0.496 p= .031	-0.026 p= .915	-0.045 p= .855	-0.289 p= .230
carrying / moving	0.189 p= .439	0.265 p= .273	-0.592 p= .008	-0.204 p= .402	0.075 p= .760	-0.298 p= .216
hand coordination	0.279 p= .247	0.422 p= .072	-0.266 p= .270	-0.277 p= .251	0.007 p= .978	-0.031 p= .899
vision	0.023 p= .927	0.369 p= .120	0.278 p= .250	0.084 p= .731	0.088 p= .726	0.366 p= .124
performance (other)	0.251 p= .300	0.156 p= .524	0.083 p= .734	-0.337 p= .158	-0.115 p= .638	0.187 p= .443
more mistakes	1	0.310 p= .196	0.133 p= .586	-0.108 p= .660	0.486 p= .035	0.046 p= .851
longer time	0.310 p= .196	1	-0.107 p= .662	0.041 p= .868	0.170 p= .486	0.229 p= .345
not finished	0.133 p= .586	-0.107 p= .662	1	0.374 p= .115	0.192 p= .431	0.550 p= .015
abandoned	-0.108 p= .660	0.041 p= .868	0.374 p= .115	1	0.068 p= .783	0.239 p= .324
not attempt	0.486 p= .035	0.170 p= .486	0.192 p= .431	0.068 p= .783	1	0.175 p= .473
completion (other)	0.046 p= .851	0.229 p= .345	0.550 p= .015	0.239 p= .324	0.175 p= .473	1
cold / flu	0.234 p= .335	0.043 p= .860	-0.031 p= .899	-0.329 p= .170	-0.276 p= .253	-0.225 p= .353
air quality	0.160 p= .512	0.574 p= .010	0.034 p= .889	0.148 p= .546	-0.277 p= .251	-0.048 p= .844
noise	0.009 p= .970	0.468 p= .043	0.326 p= .173	0.166 p= .497	-0.169 p= .490	0.098 p= .689
vibration	-0.181 p= .459	0.384 p= .105	-0.546 p= .016	-0.087 p= .725	-0.015 p= .950	-0.210 p= .388
too bright	0.203 p= .404	0.356 p= .135	-0.332 p= .165	0.134 p= .586	0.001 p= .998	-0.203 p= .405
too dark	-0.088 p= .720	0.144 p= .555	0.220 p= .366	0.195 p= .424	-0.042 p= .864	0.004 p= .987
too hot	0.033 p= .892	0.225 p= .353	-0.405 p= .086	-0.248 p= .307	-0.484 p= .036	-0.279 p= .247
too cold	0.178 p= .465	0.432 p= .065	-0.034 p= .892	0.129 p= .600	-0.121 p= .623	-0.354 p= .137
other (other)	0.701 p= .001	0.345 p= .149	0.025 p= .917	-0.291 p= .227	0.276 p= .252	0.246 p= .310

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2 2· Correlation, Ship D, no MS group (page 8 of 9)

	cold / flu	air quality	noise	vibration
ship Vaccn	**-0.695** p= 001	-0.317 p= .187	-0 483 p= .036	0.590 p= 008
ship pitch	-0.424 p= .071	-0.131 p= 593	-0.375 p= .114	**0.658** p= .002
ship Laccn	**-0.650** p= .003	-0.232 p= .339	-0.290 p= .228	**0.688** p= 001
ship roll	-0.152 p= .534	0.156 p= .524	0.011 p= .963	**0.698** p= 001
sleep quality	-0.106 p= .664	0.251 p= 300	0.142 p= .562	0 518 p= 023
sleep time	0 053 p= .831	0.354 p= 137	0.101 p= .680	0.238 p= .326
sleep motions	-0.498 p= 030	-0.150 p= 541	-0.139 p= .570	**0.686** p= 001
sleep MS	0.390 p= .098	**0.664** p= 002	0.320 p= .182	-0.344 p= 150
sleep (other)	0.574 p= .010	0.591 p= .008	0.520 p= 023	-0.450 p= 053
mental fatigue	-0.024 p= .923	0.511 p= 025	0.258 p= .285	0.306 p= 203
physical fatigue	0.386 p= 103	**0.655** p= 002	0.372 p= .117	0.217 p= .372
sleepy	0.248 p= 305	**0.695** p= 001	0.371 p= .118	0.177 p= .469
headache	0.437 p= 061	0 365 p= .125	0.361 p= .129	-0.098 p= 691
apathy	**-0.667** p= 002	-0.085 p= .728	-0.019 p= 940	**0.800** p= .000
tension	0.164 p= .503	0.340 p= .154	0.060 p= .807	-0.046 p= .852
vomit	no data	no data	no data	no data
nausea	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data
symptom (other)	**0.759** p= .000	0.153 p= .533	0.073 p= 767	-0.596 p= 007
MISC	0.082 p= 740	0.386 p= 102	0.228 p= 348	0.325 p= 174
MS medicine	0.372 p= .117	0.420 p= 074	0.131 p= 593	0.112 p= 648
decision making	0.257 p= .288	0.232 p= 339	0.307 p= .201	-0.344 p= .149
concentration	0 241 p= .320	**0.661** p= 002	0.532 p= 019	-0.107 p= .664
memory	0.562 p= 012	0.454 p= 051	0.587 p= .008	-0.145 p= 554
simple tasks	**0.628** p= .004	0.567 p= .011	0.477 p= .039	-0.292 p= .224
balance	-0.325 p= .174	-0.098 p= .691	-0.185 p= .448	**0.690** p= .001
carrying / moving	-0.103 p= .674	0.085 p= 729	-0.144 p= .556	**0.670** p= 002
hand coordination	0.402 p= .088	0.466 p= 044	0.292 p= .225	0.293 p= 223
vision	0.107 p= .661	0.400 p= .090	0.428 p= .067	0.025 p= .919
performance (other)	**0.739** p= .000	0.351 p= .140	0.286 p= .235	-0.461 p= 047
more mistakes	0.234 p= 335	0.160 p= .512	0.009 p= 970	-0.181 p= .459
longer time	0.043 p= 860	0 574 p= 010	0.468 p= 043	0.384 p= .105
not finished	-0.031 p= 899	0.034 p= .889	0.326 p= 173	-0.546 p= 016
abandoned	-0.329 p= 170	0.148 p= .546	0.166 p= .497	-0.087 p= 725
not attempt	-0.276 p= .253	-0.277 p= 251	-0.169 p= .490	-0.015 p= .950
completion (other)	-0.225 p= .353	-0 048 p= 844	0.098 p= .689	-0.210 p= .388
cold / flu	1	0.543 p= 016	0.453 p= .051	-0.463 p= 046
air quality	0.543 p= 016	1	**0.657** p= 002	-0.034 p= 891
noise	0.453 p= 051	**0.657** p= 002	1	-0.035 p= .886
vibration	-0.463 p= .046	-0.034 p= .891	-0.035 p= .886	1
too bright	-0.072 p= .769	0.171 p= 483	0.109 p= .658	**0.690** p= 001
too dark	0.363 p= .126	0.502 p= .029	0.402 p= .088	-0.300 p= .212
too hot	**0.626** p= 004	0.524 p= 021	0.319 p= .183	0.097 p= 692
too cold	0.447 p= .055	**0.683** p= 001	0.484 p= .036	0.054 p= .826
other (other)	0.055 p= 824	0.117 p= .635	-0.173 p= .480	-0.126 p= 606

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2.2· Correlation, Ship D, no MS group (page 9 of 9)

	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	0.203 p= .406	-0.238 p= .327	-0.320 p= .182	-0.175 p= .474	0.162 p= 507
ship pitch	0.308 p= 199	-0.142 p= 562	0.013 p= 959	-0.030 p= 903	0.206 p= .397
ship Laccn	0.420 p= .073	-0.254 p= .295	-0.211 p= .386	-0.158 p= .518	-0.105 p= .670
ship roll	0.592 p= 008	-0.170 p= .488	0.318 p= .185	0.143 p= .559	0 000 p= .999
sleep quality	0.280 p= 246	-0.103 p= 676	0.184 p= .451	0.144 p= .557	-0.574 p= .010
sleep time	-0.026 p= .915	-0.095 p= .700	0.123 p= 617	0.075 p= .761	-0.437 p= .061
sleep motions	0.421 p= .073	-0.309 p= 198	-0.030 p= .902	-0.051 p= .835	-0.420 p= 073
sleep MS	-0.170 p= 486	0.510 p= .026	0.453 p= .051	0.568 p= .011	-0.045 p= .856
sleep (other)	-0.255 p= 292	0.356 p= 135	0.230 p= .343	0.424 p= .070	-0.159 p= .515
mental fatigue	0.161 p= .509	0.203 p= .404	0.223 p= .358	0.304 p= .206	-0.338 p= .157
physical fatigue	0 348 p= 144	0.233 p= .337	**0.623** p= .004	0.460 p= 047	-0.074 p= .764
sleepy	0.248 p= 307	0.291 p= .227	0 497 p= .030	0.395 p= .094	-0.320 p= .182
headache	0.101 p= .679	0.141 p= .566	0.240 p= .322	0.417 p= .076	0.522 p= 022
apathy	0 499 p= 029	-0.332 p= .164	-0.146 p= 551	0.003 p= .991	0.080 p= 745
tension	0.077 p= 755	-0.020 p= 936	0.092 p= 709	0.266 p= .271	0.302 p= .209
vomit	no data	no data	no data	no data	no data
nausea	no data	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data	no data
symptom (other)	-0.246 p= .310	0.088 p= .721	0.366 p= 123	0.149 p= 541	0.456 p= 049
MISC	0.218 p= .371	-0 022 p= .930	0.294 p= .222	0.382 p= 106	0.359 p= 131
MS medicine	-0.060 p= 806	0.075 p= .760	0.565 p= 012	0.205 p= 400	0.074 p= .763
decision making	-0.112 p= 647	0.387 p= .102	-0.159 p= .517	0.068 p= 782	0.256 p= .290
concentration	-0.095 p= 699	0.185 p= .448	0.177 p= 469	0.128 p= .602	0.114 p= .641
memory	0.123 p= 615	0.324 p= .176	0.297 p= 218	0.325 p= .175	0.210 p= 388
simple tasks	-0.201 p= .408	0.274 p= .257	0.488 p= 034	0.242 p= .318	0.263 p= 277
balance	0 511 p= 025	-0 290 p= 229	0.164 p= .502	-0.024 p= .923	0.060 p= .807
carrying / moving	0 510 p= 026	-0.181 p= 458	0.282 p= .242	0 187 p= .444	0.180 p= 460
hand coordination	0.419 p= .074	0.128 p= .601	0.567 p= 011	0.362 p= .127	0.374 p= .115
vision	-0.031 p= 901	0.239 p= .325	-0.120 p= .626	0.273 p= .258	0.238 p= .326
performance (other)	-0.177 p= 468	0.136 p= 579	0.445 p= 056	0.201 p= .409	0.404 p= .086
more mistakes	0.203 p= 404	-0.088 p= .720	0.033 p= .892	0.178 p= .465	**0.701** p= 001
longer time	0.356 p= 135	0.144 p= .555	0.225 p= .353	0.432 p= .065	0.345 p= 149
not finished	-0.332 p= 165	0.220 p= 366	-0.405 p= .086	-0.034 p= .892	0.025 p= 917
abandoned	0.134 p= 586	0.195 p= .424	-0.248 p= 307	0.129 p= .600	-0.291 p= .227
not attempt	0 001 p= 998	-0.042 p= .864	-0.484 p= 036	-0.121 p= 623	0.276 p= .252
completion (other)	-0.203 p= 405	0.004 p= 987	-0.279 p= 247	-0.354 p= 137	0.246 p= .310
cold / flu	-0.072 p= 769	0.363 p= .126	**0.626** p= .004	0.447 p= .055	0.055 p= 824
air quality	0.171 p= 483	0.502 p= 029	0.524 p= .021	**0.683** p= .001	0.117 p= 635
noise	0.109 p= .656	0.402 p= .088	0.319 p= 183	0 484 p= .036	-0.173 p= 480
vibration	**0.690** p= 001	-0.300 p= .212	0.097 p= .692	0.054 p= 826	-0.126 p= .608
too bright	1	-0.049 p= .842	0.302 p= .209	0.346 p= 147	0.055 p= .822
too dark	-0.049 p= 842	1	0.313 p= .192	0.486 p= .035	0.020 p= .935
too hot	0.302 p= .209	0.313 p= 192	1	0.411 p= .080	0.025 p= 920
too cold	0.346 p= 147	0.486 p= 035	0.411 p= 080	1	0.054 p= 826
other (other)	0.055 p= .822	0.020 p= .935	0.025 p= .920	0.054 p= .826	1

Legend **bold** = high significance ($p < 0.005$), *normal* = significant ($p < 0.05$), **shade** = not significant ($p > 0.05$)

Table D.2 3. Correlation, Ship D, any MS group (page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914** p= .000	**0.766** p= .000	0.434 p= .063
ship pitch	**0.914** p= .000	1	**0.753** p= .000	**0.638** p= .003
ship Laccn	**0.766** p= .000	**0.753** p= .000	1	**0.775** p= .000
ship roll	0.434 p= .063	**0.638** p= .003	**0.775** p= .000	1
sleep quality	0.383 p= .106	0.224 p= .356	0.436 p= .062	0.156 p= .525
sleep time	0.229 p= .345	0.127 p= .604	0.274 p= .256	0.161 p= .511
sleep motions	0.559 p= .013	0.547 p= .015	**0.670** p= .002	0.515 p= .024
sleep MS	0.508 p= .026	0.512 p= .025	0.534 p= .019	0.466 p= .044
sleep (other)	-0.388 p= .101	-0.436 p= .062	-0.384 p= .105	-0.297 p= .217
mental fatigue	0.036 p= .885	0.038 p= .878	0.224 p= .358	0.327 p= .171
physical fatigue	0.315 p= .190	0.203 p= .405	0.330 p= .167	0.276 p= .253
sleepy	0.252 p= .297	0.218 p= .369	0.441 p= .059	0.427 p= .068
headache	**0.746** p= .000	0.576 p= .010	**0.657** p= .002	0.320 p= .182
apathy	0.585 p= .009	0.451 p= .053	0.527 p= .021	0.307 p= .201
tension	0.163 p= .505	0.033 p= .892	0.269 p= .266	0.075 p= .761
vomit	0.573 p= .010	0.594 p= .007	0.601 p= .007	0.413 p= .079
nausea	0.583 p= .009	0.561 p= .012	0.434 p= .064	0.296 p= .219
stomach awareness	**0.678** p= .001	**0.679** p= .001	0.577 p= .010	0.445 p= .056
symptom (other)	-0.591 p= .008	0.472 p= .041	-0.422 p= .072	-0.234 p= .336
MISC	**0.742** p= .000	**0.732** p= .000	**0.726** p= .000	0.526 p= .021
MS medicine	-0.275 p= .255	0.010 p= .967	-0.421 p= .073	0.100 p= .684
decision making	0.080 p= .746	-0.007 p= .978	0.128 p= .600	0.050 p= .838
concentration	-0.149 p= .543	-0.226 p= .352	-0.172 p= .481	-0.123 p= .617
memory	-0.293 p= .224	-0.297 p= .217	-0.282 p= .242	-0.164 p= .501
simple tasks	-0.010 p= .966	-0.069 p= .779	0.058 p= .815	0.002 p= .993
balance	**0.643** p= .003	0.578 p= .010	0.611 p= .005	0.443 p= .058
carrying / moving	**0.636** p= .003	0.589 p= .008	**0.728** p= .000	0.561 p= .013
hand coordination	0.370 p= .119	0.279 p= .247	0.356 p= .134	0.258 p= .286
vision	-0.289 p= .230	-0.344 p= .149	-0.223 p= .359	-0.183 p= .455
performance (other)	0.578 p= .010	0.351 p= .140	0.205 p= .400	-0.219 p= .367
more mistakes	0.024 p= .923	-0.141 p= .565	0.030 p= .904	-0.227 p= .351
longer time	0.379 p= .110	0.379 p= .109	0.426 p= .069	0.388 p= .101
not finished	0.196 p= .421	0.164 p= .502	0.344 p= .149	0.185 p= .449
abandoned	**0.735** p= .000	**0.726** p= .000	0.592 p= .008	0.385 p= .104
not attempt	0.432 p= .065	0.478 p= .038	0.513 p= .025	0.476 p= .039
completion (other)	0.373 p= .116	0.486 p= .035	0.582 p= .009	0.604 p= .006
cold / flu	**-0.682** p= .001	**-0.683** p= .001	-0.577 p= .010	-0.423 p= .071
air quality	-0.257 p= .289	-0.351 p= .141	-0.124 p= .613	-0.223 p= .358
noise	-0.135 p= .583	-0.051 p= .837	0.202 p= .407	0.353 p= .138
vibration	0.490 p= .033	0.532 p= .019	**0.703** p= .001	**0.653** p= .002
too bright	-0.007 p= .978	-0.131 p= .594	-0.093 p= .704	-0.288 p= .232
too dark	0.044 p= .859	-0.023 p= .924	0.255 p= .292	0.018 p= .943
too hot	0.236 p= .331	0.074 p= .763	0.285 p= .237	0.145 p= .554
too cold	**-0.630** p= .004	**-0.664** p= .002	-0.609 p= .006	-0.578 p= .010
other (other)	0.019 p= .938	0.015 p= .952	-0.256 p= .290	-0.130 p= .595

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), **shade** = not significant ($p > 0.05$)

Table D.2.3: Correlation, Ship D, any MS group (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0.383 p= .106	0.229 p= .345	0.559 p= .013	0.508 p= .026	-0.388 p= .101
ship pitch	0.224 p= 356	0.127 p= .604	0.547 p= .015	0.512 p= .025	-0.436 p= .062
ship Laccn	0.436 p= .062	0.274 p= .256	**0.670** p= .002	0.534 p= .019	-0.384 p= .105
ship roll	0.156 p= .525	0.161 p= .511	0.515 p= .024	0.466 p= .044	-0.297 p= 217
sleep quality	1	**0.866** p= 000	**0.774** p= 000	**0.621** p= .005	0.038 p= .879
sleep time	**0.866** p= 000	1	**0.665** p= 002	0.506 p= 027	0.092 p= .709
sleep motions	**0.774** p= 000	**0.665** p= 002	1	**0.791** p= .000	-0.359 p= .131
sleep MS	**0.621** p= .005	0.506 p= 027	**0.791** p= 000	1	-0.405 p= .085
sleep (other)	0.038 p= .879	0.092 p= .709	-0.359 p= .131	-0.405 p= .085	1
mental fatigue	0.599 p= 007	**0.642** p= .003	0.548 p= .015	0.434 p= .063	0.153 p= .531
physical fatigue	**0.748** p= 000	**0.739** p= .000	0.566 p= .011	**0.703** p= .001	0.027 p= .913
sleepy	**0.746** p= 000	**0.738** p= 000	**0.640** p= .003	**0.709** p= .001	0.076 p= .758
headache	**0.662** p= 002	0.589 p= .008	**0.741** p= 000	**0.622** p= .004	-0.339 p= .156
apathy	0.588 p= .008	0.370 p= 119	0.609 p= 006	**0.686** p= 001	-0.393 p= .096
tension	0.340 p= .154	0.283 p= .240	0.239 p= .325	0.027 p= .911	0.370 p= .119
vomit	0.538 p= .017	0.386 p= 102	**0.711** p= 001	0.615 p= .005	-0.326 p= .173
nausea	0 327 p= 171	0.275 p= .254	0.580 p= 009	0.233 p= .338	-0.152 p= .533
stomach awareness	0 478 p= .038	0.414 p= .078	**0.697** p= 001	0.437 p= .061	-0.184 p= 451
symptom (other)	-0.370 p= .119	-0.155 p= .526	-0.413 p= 079	-0.474 p= 040	0.423 p= .071
MISC	0.533 p= 019	0.429 p= .067	**0.828** p= 000	0.481 p= 037	-0.383 p= .106
MS medicine	-0 394 p= 095	-0.200 p= .411	-0.198 p= .417	-0.087 p= 724	0.125 p= .609
decision making	0.315 p= 188	0.342 p= 152	0.083 p= .735	0.091 p= .712	0.486 p= 035
concentration	0.297 p= .217	0.417 p= .076	0.033 p= 893	0.050 p= .838	0.495 p= .031
memory	0.068 p= 781	0.141 p= .566	-0.265 p= .273	-0.270 p= .263	**0.767** p= 000
simple tasks	0.359 p= 132	0.379 p= 110	0.083 p= .735	0.104 p= .672	**0.633** p= .004
balance	**0.735** p= 000	**0.682** p= 001	**0.729** p= .000	0.557 p= .013	-0.070 p= .775
carrying / moving	**0.715** p= 001	**0.620** p= .005	**0.803** p= 000	0.575 p= 010	-0.131 p= .594
hand coordination	0 529 p= 020	0.418 p= 075	0.476 p= 039	0.390 p= .099	0.097 p= .693
vision	0.171 p= 485	0.182 p= .455	-0.132 p= 591	-0.074 p= .764	**0.706** p= 001
performance (other)	0.398 p= .091	0.219 p= .368	0.201 p= .409	0.274 p= .256	-0.009 p= .971
more mistakes	0.190 p= 435	0.231 p= .341	0.054 p= 827	-0.189 p= .439	0.112 p= 649
longer time	0.460 p= 047	0.502 p= 028	0.575 p= .010	0.281 p= .244	-0.025 p= .920
not finished	0 203 p= .405	0.254 p= .294	0.237 p= .329	0.285 p= .238	0.075 p= .760
abandoned	0.405 p= .086	0.343 p= .151	**0.663** p= .002	0.438 p= 060	-0 360 p= .130
not attempt	0.077 p= .753	-0.022 p= 930	0.305 p= .204	0.078 p= .751	-0.230 p= .344
completion (other)	0.081 p= .743	-0.012 p= .961	0.232 p= 339	0.099 p= .686	-0.207 p= 395
cold / flu	-0.048 p= .845	0.046 p= .850	-0 363 p= 127	-0.369 p= .120	0.600 p= 007
air quality	0.394 p= 095	0.315 p= .189	0.200 p= 412	0.057 p= .817	0.192 p= 432
noise	0.382 p= .106	0.321 p= .180	0.394 p= .095	0.319 p= .183	0.126 p= .606
vibration	0 516 p= 024	0.469 p= .043	**0.871** p= .000	0.562 p= .012	-0.412 p= 080
too bright	0.497 p= 031	0.546 p= 016	0.202 p= .406	0.083 p= 736	0.258 p= .287
too dark	0.383 p= .105	0.261 p= .280	0.338 p= 157	0.091 p= .712	-0.244 p= .313
too hot	0.257 p= 288	0.320 p= .182	0.317 p= 186	-0.007 p= .977	0.045 p= .855
too cold	-0.303 p= .207	-0.220 p= .366	-0.559 p= .013	-0.370 p= .119	0.247 p= .308
other (other)	-0.225 p= 355	-0.340 p= .154	-0.286 p= 236	-0.009 p= .969	0.090 p= .715

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), "shade" = not significant (p > 0 05)

Table D.2.3: Correlation, Ship D, any MS group (page 3 of 9)

	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	0 036 p= .885	0.315 p= .190	0.252 p= .297	**0.746** p= 000	0.585 p= 009	0.163 p= 505
ship pitch	0.038 p= .878	0.203 p= .405	0.218 p= 369	0.576 p= 010	0.451 p= .053	0.033 p= .892
ship Laccn	0.224 p= .358	0.330 p= .167	0.441 p= .059	**0.657** p= 002	0.527 p= .021	0.269 p= 266
ship roll	0.327 p= 171	0.276 p= .253	0.427 p= .068	0.320 p= .182	0.307 p= .201	0.075 p= .761
sleep quality	0.599 p= 007	**0.748** p= 000	**0.746** p= 000	**0.662** p= 002	0.588 p= .008	0.340 p= 154
sleep time	**0.642** p= 003	**0.739** p= 000	**0.738** p= 000	0.589 p= .008	0.370 p= .119	0.283 p= 240
sleep motions	0 548 p= 015	0.566 p= 011	**0.640** p= .003	**0.741** p= 000	0.609 p= .006	0.239 p= .325
sleep MS	0.434 p= .063	**0.703** p= 001	**0.709** p= 001	**0.622** p= .004	**0.686** p= 001	0.027 p= 911
sleep (other)	0.153 p= .531	0.027 p= 913	0.076 p= .758	-0.339 p= 156	-0.393 p= 096	0.370 p= 119
mental fatigue	1	**0.683** p= [illegible]	**0.686** p= 001	0.396 p= 093	0.423 p= .071	0.431 p= .065
physical fatigue	**0.683** p= 001	1	**0.866** p= 000	**0.644** p= 003	**0.631** p= 004	0.313 p= .192
sleepy	**0.686** p= 001	**0.866** p= 000	1	**0.621** p= 005	0 498 p= 030	0.389 p= 099
headache	0.396 p= .093	**0.644** p= 003	0.621 p= 005	1	**0.647** p= 003	0.485 p= 035
apathy	0.423 p= 071	**0.631** p= 004	0.498 p= 030	**0.647** p= 003	1	0.094 p= .703
tension	0.431 p= 065	0.313 p= 192	0.389 p= 099	0.485 p= .035	0.094 p= 703	1
vomit	0.267 p= 269	0 410 p= .081	0.442 p= 058	0 520 p= .023	**0.620** p= 005	-0 008 p= 974
nausea	0.346 p= .147	0.216 p= .375	0.197 p= .419	**0.651** p= 003	0.364 p= .125	0.457 p= 049
stomach awareness	0 473 p= .041	0.416 p= 077	0.415 p= .077	**0.738** p= 000	0.409 p= 082	0.488 p= 034
symptom (other)	0.042 p= .866	-0.236 p= .331	-0.158 p= 517	-0.379 p= .110	**-0.663** p= 002	0.368 p= .121
MISC	0.431 p= .065	0.321 p= .181	0.395 p= .094	**0.777** p= 000	0.541 p= 017	0.356 p= 135
MS medicine	0 007 p= 978	-0.140 p= 568	-0.113 p= .647	-0.372 p= .117	-0.303 p= 208	-0.161 p= .509
decision making	0 472 p= 041	0.371 p= 118	0 514 p= 025	0.286 p= 236	-0.028 p= 910	0.558 p= .013
concentration	0.535 p= 018	0.416 p= 076	0.460 p= 048	0.221 p= .363	-0.104 p= 671	0.596 p= 007
memory	0 382 p= .106	0.099 p= 687	0.178 p= 466	-0.195 p= .423	-0.351 p= 141	0.448 p= 054
simple tasks	0.366 p= .124	0.218 p= .370	0.428 p= .068	0.073 p= .768	-0.087 p= .724	0.466 p= 045
balance	0.435 p= 063	0.566 p= .012	**0.658** p= 002	**0.760** p= 000	0.439 p= 060	0.369 p= 120
carrying / moving	0.483 p= 036	0.478 p= 039	**0.645** p= 003	**0.731** p= 000	0.507 p= 027	0.337 p= .159
hand coordination	0.583 p= 009	0 455 p= 050	0.519 p= 023	0.541 p= 017	0 406 p= .085	0 540 p= 017
vision	0.146 p= 551	0.135 p= 582	0.265 p= .272	-0.212 p= .384	-0.203 p= .404	0.281 p= .244
performance (other)	0.003 p= 991	0.211 p= .386	0.064 p= .796	0.316 p= .187	0.456 p= 049	0.052 p= .832
more mistakes	0.269 p= 266	-0.016 p= .947	0.037 p= 880	0.213 p= 382	-0.127 p= .603	0.415 p= 077
longer time	**0.702** p= 001	0.410 p= .081	0.494 p= .031	0 610 p= .006	0.243 p= 315	0.596 p= .007
not finished	0.175 p= 474	0.205 p= 399	0.278 p= .249	0.276 p= 253	0.017 p= .947	0.324 p= 176
abandoned	0.269 p= 265	0.286 p= .236	0.296 p= .219	**0.763** p= 000	0.403 p= 087	0.396 p= 093
not attempt	0.049 p= 841	-0.051 p= 835	-0.047 p= .848	0.266 p= 272	0.174 p= 475	0.187 p= 442
completion (other)	0.264 p= .275	0.154 p= 530	0.330 p= .167	0.324 p= .176	0.281 p= .243	0.281 p= .245
cold / flu	0.268 p= .267	-0.008 p= .976	0.036 p= .885	-0.346 p= .147	-0.491 p= 033	0.311 p= .195
air quality	0.268 p= 268	0.212 p= .384	0.196 p= 420	0.134 p= .585	-0.145 p= .553	0 448 p= .055
noise	**0.688** p= 001	0.304 p= .206	0.470 p= 042	0.134 p= .585	0.125 p= .609	0.324 p= 176
vibration	0.431 p= .068	0.334 p= .162	0.477 p= .039	**0.679** p= .001	0.411 p= .080	0.272 p= 260
too bright	-0.008 p= 974	0.301 p= .211	0.179 p= .463	0.174 p= .476	-0.117 p= .633	0.122 p= 619
too dark	0.397 p= .093	0.149 p= 542	0.186 p= .445	0.294 p= .221	0.051 p= .836	0.298 p= 215
too hot	0.190 p= .435	0.150 p= 539	0.003 p= .990	0.365 p= .124	0.147 p= 548	0.286 p= .235
too cold	-0.106 p= .665	-0.231 p= .341	-0.251 p= .300	-0.474 p= .040	-0.545 p= 016	0.101 p= .681
other (other)	-0.417 p= 076	-0.006 p= .980	-0.193 p= 429	-0.162 p= .508	-0.131 p= .594	-0.111 p= .651

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.3· Correlation, Ship D, any MS group

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	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	0 573 p= 010	0.583 p= 009	**0.678** p= .001	-0.591 p= .006	**0.742** p= .000	-0.275 p= .256
ship pitch	0 594 p= 007	0.561 p= 012	**0.679** p= 001	-0.472 p= 041	**0.732** p= 000	0.010 p= .967
ship Laccn	0.601 p= 007	0 434 p= .064	0.577 p= .010	-0.422 p= .072	**0.726** p= .000	-0.421 p= .073
ship roll	0.413 p= 079	0.296 p= .219	0.445 p= .056	-0.234 p= .336	0.526 p= 021	0.100 p= .684
sleep quality	0.538 p= 017	0.327 p= 171	0.478 p= .038	-0.370 p= .119	0.533 p= .019	-0.394 p= 095
sleep time	0 386 p= .102	0.275 p= .254	0.414 p= .078	-0.155 p= .526	0.429 p= .067	-0.200 p= .411
sleep motions	**0.711** p= 001	0.580 p= .009	**0.697** p= 001	-0.413 p= .079	**0.828** p= .000	-0.198 p= .417
sleep MS	0.615 p= 005	0 233 p= .338	0.437 p= .061	-0.474 p= .040	0.481 p= 037	-0.087 p= .724
sleep (other)	-0.326 p= 173	-0.152 p= .533	-0.184 p= .451	0.423 p= .071	-0.383 p= .106	0.125 p= .609
mental fatigue	0.267 p= 269	0.346 p= .147	0 473 p= 041	0.042 p= .866	0.431 p= .065	0.007 p= .978
physical fatigue	0.410 p= 081	0.216 p= 375	0.416 p= .077	-0.236 p= .331	0.321 p= .181	-0.140 p= 568
sleepy	0.442 p= 058	0.197 p= 419	0.415 p= .077	-0.158 p= .517	0.395 p= .094	-0.113 p= 647
headache	0.520 p= 023	**0.651** p= 003	**0.738** p= 000	-0.379 p= .110	**0.777** p= 000	-0.372 p= 117
apathy	**0.620** p= 005	0.364 p= 125	0.409 p= 082	**-0.663** p= 002	0.541 p= 017	-0.303 p= .208
tension	-0 008 p= 974	0.457 p= .049	0.488 p= 034	0.368 p= .121	0.356 p= 135	-0.161 p= .509
vomit	1	0.340 p= .154	0.412 p= .080	-0.372 p= .117	0.593 p= 007	-0.232 p= 339
nausea	0.340 p= 154	1	**0.923** p= .000	-0.135 p= .582	**0.820** p= 000	-0.072 p= .770
stomach awareness	0 412 p= 080	**0.923** p= .000	1	-0.157 p= .520	**0.864** p= 000	-0.061 p= .804
symptom (other)	-0.372 p= 117	-0.135 p= 582	-0.157 p= .520	1	-0.394 p= .095	0.254 p= 293
MISC	0.593 p= 007	**0.820** p= .000	**0.864** p= 000	-0.394 p= .095	1	-0.144 p= .557
MS medicine	-0 232 p= 339	-0.072 p= .770	-0.061 p= .804	0.254 p= .293	-0.144 p= .557	1
decision making	-0.054 p= 826	0.184 p= 452	0.350 p= .142	0.225 p= .355	0.101 p= .680	-0.163 p= 504
concentration	-0.415 p= .078	0 144 p= .556	0.275 p= .255	0.329 p= 169	0.019 p= .938	0.171 p= .483
memory	-0 485 p= 035	-0 065 p= 790	0.043 p= .860	0.429 p= 067	-0.204 p= 403	0.229 p= 346
simple tasks	-0.096 p= 696	-0.103 p= 674	0.052 p= .832	0.131 p= 592	-0.004 p= .986	0.018 p= 941
balance	0.323 p= 177	0.605 p= 006	**0.766** p= 000	-0.426 p= .069	**0.736** p= 000	-0.155 p= 526
carrying / moving	0.458 p= 049	0.611 p= 005	**0.743** p= 000	-0.482 p= 037	**0.802** p= 000	-0.250 p= .301
hand coordination	0 089 p= 716	0 463 p= 046	**0.616** p= 005	-0.237 p= .328	0.518 p= 023	-0.034 p= 891
vision	-0.165 p= .499	-0.202 p= 407	-0.106 p= .666	0.230 p= .344	-0 298 p= .215	0.081 p= .743
performance (other)	0.228 p= 347	0 121 p= 621	0.211 p= .387	-0.537 p= 018	0.260 p= .282	-0.297 p= 217
more mistakes	-0.382 p= 106	0 231 p= .342	0.288 p= .233	0.152 p= .536	0.235 p= .332	-0.258 p= 267
longer time	0.109 p= .657	**0.727** p= 000	**0.835** p= 000	0.023 p= .926	**0.753** p= 000	0.013 p= 956
not finished	0.056 p= 820	0 205 p= 400	0.330 p= 167	0.265 p= .273	0.116 p= 636	-0.292 p= .225
abandoned	0 381 p= 108	**0.876** p= 000	**0.935** p= 000	-0.200 p= .411	**0.840** p= .000	-0.101 p= .680
not attempt	-0.045 p= 853	**0.644** p= 003	**0.637** p= 003	-0.193 p= 428	0.514 p= 024	-0.129 p= 598
completion (other)	0.382 p= 106	0.399 p= .091	0.481 p= 037	-0.028 p= .909	0.491 p= .033	-0.118 p= .631
cold / flu	-0.602 p= 006	-0.226 p= .352	-0.193 p= .429	**0.654** p= 002	-0.444 p= .057	0.211 p= .386
air quality	-0.315 p= 188	0.079 p= .748	0.170 p= .486	0.280 p= .246	0.015 p= 951	-0.069 p= .778
noise	-0.094 p= 702	0.211 p= 386	0.313 p= .192	0.083 p= 734	0.259 p= .284	-0.010 p= .968
vibration	0.443 p= 057	**0.673** p= 002	**0.727** p= 000	-0.317 p= .186	**0.848** p= .000	-0.116 p= .636
too bright	-0.038 p= 878	0.086 p= .727	0.121 p= .623	0.098 p= .689	-0.024 p= .921	-0.208 p= 393
too dark	0.178 p= 466	0 122 p= .620	0.281 p= .244	0.129 p= .600	0.331 p= .166	-0.397 p= 092
too hot	0.006 p= 981	0 555 p= .014	0.442 p= .059	-0.125 p= .610	0.348 p= .144	-0.380 p= 108
too cold	**-0.680** p= 001	-0.546 p= 016	-0.468 p= .043	0.596 p= 007	**-0.638** p= 003	0.105 p= .668
other (other)	-0.341 p= 153	-0.177 p= .469	-0.131 p= .594	-0.174 p= .476	-0.312 p= .193	0.384 p= 105

Legend bold = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2 3 Correlation, Ship D, any MS group (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	0.080 p= .746	-0.149 p= .543	-0.293 p= .224	-0.010 p= .966
ship pitch	-0.007 p= .978	-0.226 p= .352	-0.297 p= .217	-0.069 p= .779
ship Laccn	0.128 p= .600	-0.172 p= .481	-0.282 p= .242	0.058 p= .815
ship roll	0.050 p= .838	-0.123 p= .617	-0.164 p= .501	0.002 p= .993
sleep quality	0.315 p= .188	0.297 p= .217	0.068 p= .781	0.359 p= .132
sleep time	0.342 p= .152	0.417 p= .076	0.141 p= .566	0.379 p= .110
sleep motions	0.083 p= .735	0.033 p= .893	-0.265 p= .273	0.083 p= .735
sleep MS	0.091 p= .712	0.050 p= .838	-0.270 p= .263	0.104 p= .672
sleep (other)	0.486 p= .035	0.495 p= .031	**0.767 p= .000**	**0.633 p= .004**
mental fatigue	0.472 p= .041	0.535 p= .018	0.382 p= .106	0.366 p= .124
physical fatigue	0.371 p= .118	0.416 p= .076	0.099 p= .687	0.218 p= .370
sleepy	0.514 p= .025	0.460 p= .048	0.178 p= .466	0.428 p= .068
headache	0.286 p= .236	0.221 p= .363	-0.195 p= .423	0.073 p= .766
apathy	-0.028 p= .910	-0.104 p= .671	-0.351 p= .141	-0.087 p= .724
tension	0.558 p= .013	0.596 p= .007	0.448 p= .054	0.466 p= .045
vomit	-0.054 p= .826	-0.415 p= .078	-0.485 p= .035	-0.096 p= .696
nausea	0.184 p= .452	0.144 p= .556	-0.065 p= .790	-0.103 p= .674
stomach awareness	0.350 p= .142	0.275 p= .255	0.043 p= .860	0.052 p= .832
symptom (other)	0.225 p= .355	0.329 p= .169	0.429 p= .067	0.131 p= .592
MISC	0.101 p= .680	0.019 p= .938	-0.204 p= .403	-0.004 p= .986
MS medicine	-0.163 p= .504	0.171 p= .483	0.229 p= .346	0.018 p= .941
decision making	1	**0.730 p= .000**	**0.714 p= .001**	**0.733 p= .000**
concentration	**0.730 p= .000**	1	**0.832 p= .000**	**0.676 p= .001**
memory	**0.714 p= .001**	**0.832 p= .000**	1	**0.769 p= .000**
simple tasks	**0.733 p= .000**	**0.676 p= .001**	**0.769 p= .000**	1
balance	0.434 p= .063	0.429 p= .067	0.168 p= .493	0.377 p= .112
carrying / moving	0.435 p= .063	0.277 p= .250	0.071 p= .772	0.376 p= .112
hand coordination	**0.692 p= .001**	**0.649 p= .003**	0.474 p= .040	0.586 p= .008
vision	**0.650 p= .003**	0.493 p= .032	**0.626 p= .004**	**0.719 p= .001**
performance (other)	0.150 p= .540	0.045 p= .853	0.049 p= .844	0.303 p= .207
more mistakes	0.479 p= .038	**0.617 p= .005**	0.518 p= .023	0.400 p= .089
longer time	0.497 p= .030	0.593 p= .007	0.369 p= .120	0.294 p= .221
not finished	0.507 p= .027	0.376 p= .113	0.268 p= .268	0.405 p= .086
abandoned	0.236 p= .332	0.201 p= .410	-0.079 p= .746	-0.003 p= .992
not attempt	0.017 p= .946	0.035 p= .887	-0.022 p= .927	-0.149 p= .543
completion (other)	0.244 p= .314	-0.104 p= .672	-0.079 p= .747	-0.118 p= .631
cold / flu	0.472 p= .041	**0.738 p= .000**	**0.795 p= .000**	0.450 p= .053
air quality	0.255 p= .292	0.613 p= .005	0.425 p= .070	0.290 p= .229
noise	0.317 p= .187	0.506 p= .027	0.433 p= .064	0.356 p= .135
vibration	0.047 p= .848	0.073 p= .767	-0.232 p= .339	-0.017 p= .945
too bright	-0.011 p= .963	0.257 p= .288	0.117 p= .634	0.098 p= .688
too dark	0.298 p= .215	0.178 p= .466	0.097 p= .693	0.063 p= .798
too hot	0.147 p= .547	0.106 p= .665	-0.048 p= .844	-0.041 p= .867
too cold	0.175 p= .474	0.417 p= .076	0.470 p= .043	0.225 p= .354
other (other)	-0.147 p= .548	0.049 p= .842	0.043 p= .860	-0.103 p= .675

Legend **bold** = high significance (p < 0.005), normal = significant (p < 0.05), shade = not significant (p > 0.05)

Table D.2.3· Correlation, Ship D, any MS group (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	**0.643** p= 003	**0.636** p= .003	0.370 p= .119	-0.289 p= .230	0.578 p= 010
ship pitch	0.578 p= 010	0.589 p= .008	0.279 p= .247	-0.344 p= .149	0.351 p= .140
ship Laccn	0.611 p= 005	**0.728** p= 000	0.356 p= .134	-0.223 p= .359	0.205 p= 400
ship roll	0.443 p= .058	0.561 p= .013	0.258 p= .286	-0.183 p= .455	-0.219 p= .367
sleep quality	**0.735** p= .000	**0.715** p= .001	0.529 p= 020	0.171 p= .485	0.398 p= .091
sleep time	**0.682** p= 001	**0.620** p= .005	0.418 p= .075	0.182 p= .455	0.219 p= .368
sleep motions	**0.729** p= .000	**0.803** p= .000	0.476 p= 039	-0.132 p= .591	0.201 p= .409
sleep MS	0.557 p= .013	0.575 p= .010	0.390 p= .099	-0.074 p= .764	0.274 p= .256
sleep (other)	-0.070 p= 775	-0.131 p= .594	0.097 p= .693	**0.706** p= .001	-0.009 p= .971
mental fatigue	0.435 p= .063	0 483 p= 036	0.583 p= 009	0.146 p= .551	0.003 p= .991
physical fatigue	0.566 p= 012	0.478 p= .039	0.455 p= 050	0.135 p= .582	0.211 p= .386
sleepy	**0.658** p= 002	**0.645** p= 003	0.519 p= 023	0.265 p= .272	0.064 p= 796
headache	**0.760** p= .000	**0.731** p= 000	0.541 p= 017	-0.212 p= .384	0.316 p= 187
apathy	0.439 p= .060	0.507 p= .027	0.406 p= .085	-0.203 p= .404	0.456 p= 049
tension	0.369 p= 120	0.337 p= .159	0.540 p= 017	0.281 p= .244	0.052 p= .832
vomit	0.323 p= .177	0.458 p= 049	0.089 p= .716	-0.165 p= .499	0.228 p= .347
nausea	0 605 p= 006	0.611 p= .005	0.463 p= 046	-0.202 p= .407	0.121 p= 621
stomach awareness	**0.766** p= .000	**0.743** p= 000	**0.618** p= 005	-0.106 p= 666	0.211 p= .387
symptom (other)	-0.426 p= 069	-0.482 p= .037	-0.237 p= .328	0.230 p= 344	-0 537 p= 018
MISC	**0.736** p= 000	**0.802** p= .000	0.518 p= .023	-0.298 p= .215	0.260 p= .282
MS medicine	-0.155 p= .526	-0.250 p= .301	-0.034 p= .891	0.081 p= .743	-0.297 p= .217
decision making	0.434 p= 063	0.435 p= .063	**0.692** p= 001	**0.650** p= 003	0.150 p= 540
concentration	0 429 p= .067	0.277 p= .250	**0.649** p= 003	0.493 p= 032	0.045 p= 853
memory	0.168 p= .493	0.071 p= .772	0.474 p= 040	**0.626** p= 004	0.049 p= 844
simple tasks	0.377 p= .112	0.376 p= .112	0.586 p= 008	**0.719** p= .001	0.303 p= 207
balance	1	**0.939** p= 000	**0.723** p= 000	0.098 p= .691	0.335 p= 162
carrying / moving	**0.939** p= .000	1	**0.742** p= .000	0.108 p= .661	0.289 p= .229
hand coordination	**0.723** p= 000	**0.742** p= .000	1	0.401 p= .089	0.357 p= .134
vision	0.098 p= 691	0.108 p= .661	0.401 p= .089	1	0.184 p= .451
performance (other)	0.335 p= .162	0.289 p= .229	0.357 p= .134	0.184 p= .451	1
more mistakes	0.348 p= .144	0.300 p= .211	0.497 p= 030	0.195 p= .423	0.283 p= 241
longer time	**0.726** p= 000	**0.700** p= .001	**0.704** p= .001	-0.011 p= .963	0.098 p= 686
not finished	0.345 p= .148	0.347 p= .146	0.329 p= .169	0.290 p= .228	0.070 p= 775
abandoned	**0.755** p= 000	**0.719** p= 001	0.560 p= 013	-0.225 p= .354	0.234 p= 334
not attempt	0.505 p= 028	0.506 p= 027	0.339 p= .158	-0.189 p= 438	0.041 p= .868
completion (other)	0.275 p= 255	0.376 p= .113	0.205 p= .399	-0.173 p= .480	-0.131 p= .593
cold / flu	-0.129 p= .599	-0.232 p= .340	0.205 p= .400	0.486 p= .035	-0.311 p= .194
air quality	0.300 p= .213	0.174 p= .477	0.401 p= .088	0.250 p= .302	-0.090 p= .713
noise	0.399 p= 090	0.434 p= .063	0.446 p= .056	0.036 p= .883	-0.223 p= .358
vibration	**0.732** p= .000	**0.814** p= .000	0.470 p= .042	-0.252 p= .298	-0.083 p= .736
too bright	0.336 p= 160	0.120 p= .625	-0.080 p= .745	0.113 p= .646	0.111 p= .652
too dark	0.196 p= 420	0.254 p= 294	0.339 p= 156	-0.093 p= .706	0.019 p= .940
too hot	0 364 p= 125	0.407 p= .084	0.304 p= 207	0.054 p= .826	0.043 p= 861
too cold	-0 447 p= 055	-0.564 p= 012	-0.096 p= .695	0.298 p= .219	-0.064 p= .796
other (other)	-0.052 p= 832	-0.232 p= .340	0.025 p= 918	0.133 p= .586	0 089 p= 716

Legend bold = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2.3: Correlation, Ship D, any MS group (page 7 of 9)

	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	0.024 p= 923	0.379 p= .110	0.196 p= .421	**0.735** p= 000	0.432 p= .065	0.373 p= 116
ship pitch	-0.141 p= .565	0.379 p= .109	0.164 p= .502	**0.726** p= 000	0.478 p= 038	0.486 p= 035
ship Laccn	0.030 p= 904	0.426 p= .069	0.344 p= .149	0.592 p= 008	0.513 p= 025	0.582 p= 009
ship roll	-0.227 p= .351	0.388 p= .101	0.185 p= .449	0.385 p= 104	0.476 p= 039	0.604 p= 006
sleep quality	0.190 p= .435	0.460 p= 047	0.203 p= .405	0.405 p= .088	0.077 p= .753	0.081 p= .743
sleep time	0.231 p= 341	0.502 p= .028	0.254 p= .294	0.343 p= .151	-0.022 p= 930	-0.012 p= .961
sleep motions	0.054 p= 827	0.575 p= .010	0.237 p= .329	**0.663** p= 002	0.305 p= .204	0.232 p= .339
sleep MS	-0.189 p= .439	0.281 p= .244	0.285 p= .238	0.438 p= .060	0.078 p= 751	0.099 p= 686
sleep (other)	0.112 p= .649	-0.025 p= 920	0.075 p= .760	-0.360 p= .130	-0.230 p= 344	-0.207 p= .395
mental fatigue	0.269 p= .266	**0.702** p= 001	0.175 p= .474	0.269 p= .265	0.049 p= 841	0.264 p= 275
physical fatigue	-0 016 p= 947	0.410 p= .081	0.205 p= .399	0.286 p= 236	-0.051 p= .835	0 154 p= .530
sleepy	0.037 p= .880	0.494 p= .031	0.278 p= .249	0.296 p= .219	-0.047 p= 848	0.330 p= .167
headache	0.213 p= 382	0.610 p= 006	0.276 p= .253	**0.763** p= 000	0.266 p= 272	0.324 p= .176
apathy	-0.127 p= 603	0.243 p= .315	0.017 p= .947	0.403 p= 087	0.174 p= 475	0.281 p= .243
tension	0.415 p= 077	0.596 p= 007	0 324 p= .176	0.396 p= .093	0.187 p= .442	0.281 p= 245
vomit	-0.382 p= .106	0.109 p= .657	0.056 p= .820	0.381 p= .108	-0.045 p= .853	0.382 p= 106
nausea	0.231 p= 342	**0.727** p= 000	0.205 p= .400	**0.876** p= 000	**0.644** p= .003	0.399 p= 091
stomach awareness	0.288 p= 233	**0.835** p= 000	0 330 p= 167	**0.935** p= 000	**0.637** p= 003	0.481 p= 037
symptom (other)	0.152 p= 536	0.023 p= .926	0.265 p= 273	-0.200 p= .411	-0.193 p= .428	-0.028 p= 909
MISC	0.235 p= 332	**0.753** p= 000	0.116 p= 636	**0.840** p= .000	0.514 p= 024	0.491 p= 033
MS medicine	-0.258 p= 287	0.013 p= 959	-0.292 p= .225	-0.101 p= .680	-0.129 p= .598	-0.118 p= .631
decision making	0.479 p= 038	0.497 p= 030	0.507 p= 027	0.236 p= .332	0.017 p= .946	0.244 p= .314
concentration	**0.617** p= 005	0 593 p= 007	0.376 p= .113	0.201 p= 410	0.035 p= .887	-0.104 p= .672
memory	0 518 p= 023	0 369 p= .120	0.268 p= 268	-0.079 p= .746	-0.022 p= 927	-0.079 p= .747
simple tasks	0 400 p= 089	0 294 p= 221	0.405 p= 086	-0.003 p= .992	-0.149 p= .543	-0.118 p= .631
balance	0.348 p= 144	**0.726** p= 000	0.345 p= 148	**0.755** p= .000	0.505 p= 028	0.275 p= .255
carrying / moving	0.300 p= .211	**0.700** p= 001	0.347 p= .146	**0.719** p= 001	0.506 p= .027	0.376 p= .113
hand coordination	0.497 p= 030	**0.704** p= 001	0.329 p= .169	0.560 p= 013	[illegible]339 p= .156	0.205 p= .399
vision	0 195 p= .423	-0.011 p= .963	0.290 p= .228	-0.225 p= .354	-0.[illegible]89 p= .438	-0.173 p= 480
performance (other)	0.283 p= 241	0.098 p= 688	0.070 p= .775	0.234 p= 334	0.041 p= 868	-0.131 p= 593
more mistakes	1	0.607 p= 006	0.386 p= 102	0.318 p= .185	0.289 p= .230	-0.047 p= 848
longer time	0.607 p= 006	1	0.298 p= .216	**0.734** p= .000	0.510 p= 026	0.436 p= .062
not finished	0 386 p= .102	0.298 p= 216	1	0.433 p= .064	0.345 p= 148	-0.031 p= 899
abandoned	0.318 p= .185	**0.734** p= 000	0.433 p= .064	1	**0.669** p= 002	0.373 p= 116
not attempt	0.289 p= 230	0.510 p= 026	0.345 p= .148	**0.669** p= 002	1	0.361 p= 129
completion (other)	-0.047 p= .848	0.436 p= .062	-0.031 p= .899	0.373 p= 116	0.361 p= 129	1
cold / flu	0.456 p= 049	0.147 p= 547	0.225 p= .354	-0.249 p= .304	-0.182 p= 455	-0.297 p= 216
air quality	0 516 p= 024	0.341 p= 153	0.315 p= .189	0.186 p= .445	0.173 p= .478	-0.325 p= .175
noise	0.319 p= .184	0.588 p= 008	0.275 p= 255	0.213 p= .381	0.345 p= .148	0.175 p= .475
vibration	0.179 p= .462	**0.674** p= 002	0.269 p= .265	**0.735** p= .000	0.571 p= 011	0.323 p= .177
too bright	0.173 p= 479	0.060 p= 806	0.280 p= 246	0.150 p= .539	0.092 p= .708	-0.427 p= .068
too dark	0.500 p= 029	0.433 p= .064	0.125 p= .611	0.250 p= .302	0.034 p= .891	0.269 p= .266
too hot	0.287 p= 234	0.339 p= .156	0.340 p= .154	0.410 p= .081	0.532 p= 019	-0.097 p= 693
too cold	0.398 p= .091	-0.165 p= .500	0.096 p= 697	-0.438 p= .061	-0.336 p= .160	-0.381 p= .108
other (other)	-0.305 p= 205	-0.313 p= .192	-0.288 p= .232	-0.129 p= .598	0.009 p= .972	-0.305 p= 204

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.3: Correlation, Ship D, any MS group (page 8 of 9)

	cold / flu	air quality	noise	vibration
ship Vaccn	**-0.682** p= .001	-0.257 p= .289	-0.135 p= .583	0.490 p= 033
ship pitch	**-0.683** p= .001	-0.351 p= .141	-0.051 p= 837	0.532 p= 019
ship Laccn	-0.577 p= .010	-0.124 p= .613	0.202 p= .407	**0.703** p= 001
ship roll	-0.423 p= 071	-0.223 p= .358	0.353 p= .138	**0.653** p= 002
sleep quality	-0.048 p= .845	0.394 p= .095	0.382 p= .106	0.516 p= 024
sleep time	0.046 p= .850	0.315 p= .189	0.321 p= 180	0.469 p= 043
sleep motions	-0.363 p= .127	0.200 p= .412	0.394 p= .095	**0.871** p= .000
sleep MS	-0.369 p= 120	0.057 p= .817	0.319 p= .183	0.562 p= .012
sleep (other)	0.600 p= 007	0.192 p= .432	0.126 p= .606	-0.412 p= .080
mental fatigue	0.268 p= 267	0.268 p= .268	**0.688** p= 001	0.431 p= 066
physical fatigue	-0.008 p= .976	0.212 p= .384	0.304 p= .206	0.334 p= 162
sleepy	0.036 p= .885	0.196 p= .420	0.470 p= .042	0.477 p= 039
headache	-0.346 p= .147	0.134 p= .585	0.134 p= .585	**0.679** p= 001
apathy	-0.491 p= .033	-0.145 p= .553	0.125 p= .609	0.411 p= .080
tension	0.311 p= .195	0.448 p= .055	0.324 p= 176	0.272 p= .260
vomit	-0.602 p= 006	-0.315 p= .189	-0.094 p= .702	0.443 p= .057
nausea	-0.226 p= 352	0.079 p= .748	0.211 p= .386	**0.673** p= .002
stomach awareness	-0.193 p= 429	0.170 p= .486	0.313 p= 192	**0.727** p= 000
symptom (other)	**0.654** p= 002	0.280 p= .246	0.083 p= .734	-0.317 p= 186
MISC	-0 444 p= .057	0.015 p= 951	0.259 p= .284	**0.848** p= 000
MS medicine	0.211 p= .386	-0.069 p= .778	-0.010 p= 968	-0.116 p= .636
decision making	0.472 p= 041	0.255 p= .292	0.317 p= .187	0.047 p= .848
concentration	**0.738** p= 000	0.613 p= 005	0.506 p= 027	0.073 p= .767
memory	**0.795** p= 000	0.425 p= 070	0.433 p= 064	-0.232 p= .339
simple tasks	0.450 p= .053	0.290 p= .229	0.356 p= 135	-0.017 p= 945
balance	-0.129 p= .599	0.300 p= .213	0.399 p= 090	**0.732** p= 000
carrying / moving	-0.232 p= .340	0.174 p= 477	0.434 p= .063	**0.814** p= .000
hand coordination	0.205 p= .400	0.401 p= 088	0.446 p= .056	0.470 p= 042
vision	0.486 p= 035	0.250 p= .302	0.036 p= 883	-0.252 p= .298
performance (other)	-0.311 p= 194	-0.090 p= .713	-0.223 p= .358	-0.083 p= 736
more mistakes	0 456 p= 049	0.516 p= 024	0.319 p= .184	0.179 p= .462
longer time	0.147 p= .547	0.341 p= .153	0.588 p= 008	**0.674** p= .002
not finished	0.225 p= 354	0.315 p= .189	0.275 p= .255	0.269 p= .265
abandoned	-0.249 p= 304	0.186 p= .445	0.213 p= .381	**0.735** p= 000
not attempt	-0.182 p= .455	0.173 p= 478	0.345 p= .148	0.571 p= 011
completion (other)	-0.297 p= 216	-0.325 p= 175	0.175 p= 475	0.323 p= .177
cold / flu	1	**0.665** p= 002	0.407 p= .084	-0.292 p= .225
air quality	**0.665** p= 002	1	0.489 p= .034	0.242 p= .319
noise	0.407 p= .084	0.489 p= 034	1	0.472 p= 041
vibration	-0.292 p= .225	0.242 p= .319	0 472 p= .041	1
too bright	0.241 p= 320	0 569 p= .011	0.079 p= .749	0.099 p= .687
too dark	0.224 p= 356	0.472 p= 041	0.310 p= .197	0.287 p= 234
too hot	-0 081 p= 743	0.226 p= 352	0.065 p= 791	0.459 p= .048
too cold	**0.699** p= .001	0.457 p= 049	0.067 p= .784	-0.576 p= 010
other (other)	0.020 p= .934	0.154 p= 529	-0.279 p= .248	-0.270 p= 263

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0.05)

Table D 2.3: Correlation, Ship D, any MS group (page 9 of 9)

	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	-0.007 p= .978	0.044 p= .859	0.236 p= .331	**-0.630 p= .004**	0.019 p= .938
ship pitch	-0.131 p= .594	-0.023 p= .924	0.074 p= .763	**-0.864 p= .002**	0.015 p= .952
ship Laccn	-0.093 p= .704	0.255 p= .292	0.285 p= .237	-0.609 p= .006	-0.256 p= .290
ship roll	-0.288 p= .232	0.018 p= .943	0.145 p= .554	-0.578 p= .010	-0.130 p= .595
sleep quality	0.497 p= .031	0.383 p= .105	0.257 p= .288	-0.303 p= .207	-0.225 p= .355
sleep time	0.546 p= .016	0.261 p= .280	0.320 p= .182	-0.220 p= .366	-0.340 p= .154
sleep motions	0.202 p= .406	0.338 p= .157	0.317 p= .186	-0.559 p= .013	-0.286 p= .236
sleep MS	0.083 p= .736	0.091 p= .712	-0.007 p= .977	-0.370 p= .119	-0.009 p= .969
sleep (other)	0.258 p= .287	-0.244 p= .313	0.045 p= .855	0.247 p= .308	0.090 p= .715
mental fatigue	-0.008 p= .974	0.397 p= .093	0.190 p= .435	-0.106 p= .665	-0.417 p= .076
physical fatigue	0.301 p= .211	0.149 p= .542	0.150 p= .539	-0.231 p= .341	-0.006 p= .980
sleepy	0.179 p= .463	0.186 p= .445	0.003 p= .990	-0.251 p= .300	-0.193 p= .429
headache	0.174 p= .476	0.294 p= .221	0.365 p= .124	-0.474 p= .040	-0.162 p= .506
apathy	-0.117 p= .633	0.051 p= .836	0.147 p= .548	-0.545 p= .016	-0.131 p= .594
tension	0.122 p= .619	0.298 p= .215	0.286 p= .235	0.101 p= .681	-0.111 p= .651
vomit	-0.038 p= .876	0.178 p= .466	0.006 p= .981	**-0.680 p= .001**	-0.341 p= .153
nausea	0.086 p= .727	0.122 p= .620	0.555 p= .014	-0.546 p= .016	-0.177 p= .469
stomach awareness	0.121 p= .623	0.281 p= .244	0.442 p= .058	-0.468 p= .043	-0.131 p= .594
symptom (other)	0.098 p= .689	0.129 p= .600	-0.125 p= .610	0.596 p= .007	-0.174 p= .476
MISC	-0.024 p= .921	0.331 p= .166	0.348 p= .144	**-0.638 p= .003**	-0.312 p= .193
MS medicine	-0.208 p= .393	-0.397 p= .092	-0.380 p= .108	0.105 p= .668	0.384 p= .105
decision making	-0.011 p= .963	0.298 p= .215	0.147 p= .547	0.175 p= .474	-0.147 p= .548
concentration	0.257 p= .288	0.178 p= .466	0.106 p= .665	0.417 p= .076	0.049 p= .842
memory	0.117 p= .634	0.097 p= .693	-0.048 p= .844	0.470 p= .043	0.043 p= .860
simple tasks	0.098 p= .688	0.063 p= .798	-0.041 p= .867	0.225 p= .354	-0.103 p= .675
balance	0.336 p= .160	0.196 p= .420	0.364 p= .125	-0.447 p= .055	-0.052 p= .832
carrying / moving	0.120 p= .625	0.254 p= .294	0.407 p= .084	-0.564 p= .012	-0.232 p= .340
hand coordination	-0.080 p= .745	0.339 p= .156	0.304 p= .207	-0.096 p= .695	0.025 p= .918
vision	0.113 p= .646	-0.093 p= .706	0.054 p= .826	0.296 p= .219	0.133 p= .586
performance (other)	0.111 p= .652	0.019 p= .940	0.043 p= .861	-0.064 p= .796	0.089 p= .716
more mistakes	0.173 p= .479	0.500 p= .029	0.287 p= .234	0.398 p= .091	-0.305 p= .205
longer time	0.060 p= .806	0.433 p= .064	0.339 p= .156	-0.165 p= .500	-0.313 p= .192
not finished	0.280 p= .246	0.125 p= .611	0.340 p= .154	0.096 p= .697	-0.288 p= .232
abandoned	0.150 p= .539	0.250 p= .302	0.410 p= .081	-0.438 p= .061	-0.129 p= .598
not attempt	0.092 p= .708	0.034 p= .891	0.532 p= .019	-0.336 p= .160	0.009 p= .972
completion (other)	-0.427 p= .068	0.269 p= .266	-0.097 p= .693	-0.381 p= .108	-0.305 p= .204
cold / flu	0.241 p= .320	0.224 p= .356	-0.081 p= .743	**0.699 p= .001**	0.020 p= .934
air quality	0.569 p= .011	0.472 p= .041	0.226 p= .352	0.457 p= .049	0.154 p= .529
noise	0.079 p= .749	0.310 p= .197	0.065 p= .791	0.067 p= .784	-0.279 p= .248
vibration	0.099 p= .687	0.287 p= .234	0.459 p= .048	-0.576 p= .010	-0.270 p= .263
too bright	1	0.022 p= .927	0.296 p= .218	0.091 p= .712	0.095 p= .698
too dark	0.022 p= .927	1	0.043 p= .861	0.253 p= .296	-0.358 p= .132
too hot	0.296 p= .218	0.043 p= .861	1	-0.346 p= .147	-0.110 p= .654
too cold	0.091 p= .712	0.253 p= .296	-0.346 p= .147	1	0.136 p= .578
other (other)	0.095 p= .698	-0.358 p= .132	-0.110 p= .654	0.136 p= .578	1

Legend. **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.4 Correlation, Ship D, low MS group

(page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914** p= .000	**0.766** p= 000	0.434 p= .063
ship pitch	**0.914** p= 000	1	**0.753** p= .000	**0.638** p= .003
ship Laccn	**0.766** p= .000	**0.753** p= .000	1	**0.775** p= .000
ship roll	0.434 p= .063	**0.638** p= .003	**0.775** p= 000	1
sleep quality	0.310 p= .196	0.143 p= .558	0.253 p= .297	0.009 p= .971
sleep time	0.079 p= .748	-0.013 p= .959	0.092 p= .707	0.076 p= .758
sleep motions	0.518 p= .023	0.518 p= 023	0.556 p= .013	0.442 p= .058
sleep MS	-0.099 p= .686	-0.006 p= 979	-0.313 p= .192	0.025 p= .919
sleep (other)	-0.343 p= .151	-0.379 p= .110	-0.403 p= .087	-0.265 p= .272
mental fatigue	-0.133 p= .588	-0.212 p= .384	-0.064 p= .796	-0.042 p= .864
physical fatigue	0.095 p= 700	0.003 p= .989	0.066 p= .787	0.058 p= 814
sleepy	0.084 p= 731	0.043 p= .863	0.122 p= .618	0.142 p= .563
headache	**0.620** p= .005	0.442 p= .058	0.410 p= .082	0.127 p= .604
apathy	0.256 p= .290	0.206 p= .397	0.285 p= .236	0.221 p= .363
tension	-0 226 p= 353	-0.388 p= .100	-0.128 p= .601	-0.342 p= .152
vomit	0.168 p= .493	0.306 p= .203	0.369 p= .120	0.411 p= .081
nausea	0 072 p= 770	0.174 p= .477	-0.005 p= .983	0.233 p= .336
stomach awareness	0.157 p= 522	0.233 p= .337	0.085 p= 729	0.189 p= .439
symptom (other)	**-0.687** p= 001	-0.609 p= 006	**-0.727** p= 000	-0.465 p= .045
MISC	0.145 p= 553	0.158 p= .518	0.053 p= 829	-0.041 p= 869
MS medicine	-0.117 p= 632	-0.318 p= .185	-0.082 p= .738	-0.456 p= 050
decision making	-0 396 p= 093	-0.465 p= 045	-0.182 p= .455	-0.179 p= 464
concentration	-0.316 p= .188	-0.425 p= .069	-0.269 p= .265	-0.235 p= .333
memory	-0.172 p= .481	-0.241 p= .320	-0.040 p= .871	-0.116 p= 635
simple tasks	-0.315 p= 188	-0.256 p= .289	-0.289 p= .231	-0.130 p= 595
balance	0.574 p= 010	0.529 p= .020	0.526 p= .021	0.366 p= 124
carrying / moving	0.501 p= 029	0.523 p= 021	0 551 p= 015	0.458 p= .048
hand coordination	0.186 p= .446	0.148 p= .544	0.389 p= .100	0.281 p= 243
vision	-0.120 p= .625	-0.240 p= .323	0.016 p= .950	-0.163 p= 505
performance (other)	0.060 p= .806	0.008 p= .975	-0.028 p= .910	-0.157 p= 521
more mistakes	-0 282 p= .242	-0.292 p= .225	-0.120 p= 625	-0.214 p= .379
longer time	0.339 p= .155	0.354 p= .137	0.516 p= .024	0.387 p= 102
not finished	-0.239 p= 324	-0.285 p= .237	-0.279 p= 247	-0.386 p= .103
abandoned	0.140 p= .567	0.128 p= 601	0.196 p= .422	0.127 p= .604
not attempt	0.392 p= .097	0.423 p= .071	0.479 p= 038	0.449 p= 054
completion (other)	no data	no data	no data	no data
cold / flu	-0 448 p= .055	-0.555 p= 014	-0.515 p= .024	-0 480 p= .037
air quality	-0.507 p= 027	-0.593 p= .007	-0.288 p= .232	-0.274 p= .256
noise	-0.074 p= .762	-0.074 p= .764	0.026 p= .915	0.038 p= 878
vibration	0.328 p= .171	0.448 p= .055	0.505 p= .027	0.588 p= .008
too bright	-0.115 p= .640	-0.040 p= .869	-0.262 p= 279	-0.131 p= 593
too dark	-0.173 p= .479	-0.268 p= .267	-0.103 p= .675	-0.108 p= 659
too hot	-0.211 p= .385	-0 144 p= .556	-0.136 p= .579	0.179 p= 463
too cold	-0 383 p= 106	-0.495 p= .031	-0.298 p= .215	-0.404 p= .087
other (other)	**-0.686** p= 001	-0.551 p= 014	**-0.672** p= 002	-0.201 p= 410

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2 4: Correlation, Ship D, low MS group (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0.310 p= .198	0.079 p= .748	0.518 p= .023	-0.099 p= .686	-0.343 p= .151
ship pitch	0.143 p= 558	-0.013 p= .959	0.518 p= .023	-0.006 p= .979	-0.379 p= .110
ship Laccn	0.253 p= .297	0.092 p= .707	0.556 p= .013	-0.313 p= .192	-0.403 p= .087
ship roll	0.009 p= 971	0.076 p= .758	0.442 p= .058	0.025 p= .919	-0.265 p= .272
sleep quality	1	**0.886** p= 000	**0.683** p= .001	0.202 p= .407	0.163 p= .504
sleep time	**0.886** p= 000	1	0.594 p= .007	0.326 p= .173	0.301 p= .211
sleep motions	**0.683** p= 001	0.594 p= 007	1	0.198 p= .417	-0.420 p= .074
sleep MS	0.202 p= .407	0.326 p= 173	0.198 p= .417	1	0.189 p= .439
sleep (other)	0.163 p= .504	0.301 p= .211	-0.420 p= .074	0.189 p= .439	1
mental fatigue	**0.681** p= 001	**0.759** p= 000	0.335 p= .161	0.273 p= .257	0.483 p= .036
physical fatigue	**0.722** p= 000	**0.734** p= 000	0.417 p= .076	0.534 p= .019	0.264 p= .274
sleepy	**0.754** p= .000	**0.786** p= 000	0.552 p= .014	0.374 p= .114	0.374 p= .115
headache	**0.693** p= 001	0.549 p= 015	0.529 p= .020	0.206 p= .398	0.014 p= .953
apathy	0 606 p= 006	0.469 p= 043	**0.680** p= .001	0.365 p= .124	-0.284 p= .238
tension	0.098 p= 690	0.008 p= .975	-0.180 p= .461	-0.065 p= .793	0.380 p= .109
vomit	-0.052 p= 832	-0.105 p= .668	0.221 p= .363	-0.003 p= .992	-0.175 p= .473
nausea	-0.149 p= 542	-0 011 p= .965	0.083 p= .737	0.324 p= .177	0.108 p= .660
stomach awareness	0.104 p= 673	0.199 p= .415	0.348 p= .144	0.199 p= .414	0.009 p= .970
symptom (other)	-0.295 p= 221	-0.057 p= .816	-0 521 p= .022	0.126 p= .609	0.578 p= .009
MISC	0.343 p= 150	0.283 p= .240	0.398 p= .091	0.086 p= .726	-0.094 p= .700
MS medicine	0.399 p= 090	0.250 p= .302	-0.022 p= .930	-0.240 p= .322	0.244 p= .315
decision making	0.131 p= .593	0.258 p= .286	-0 044 p= .857	-0.174 p= .477	0.214 p= .378
concentration	0.254 p= 293	0.374 p= .115	-0.113 p= .646	0.069 p= .777	0.598 p= .007
memory	0 257 p= 288	0.268 p= .267	-0.047 p= .848	-0.136 p= .579	0.504 p= .028
simple tasks	0 035 p= 888	0.158 p= .516	0.058 p= .815	0.093 p= .704	0.382 p= .106
balance	0 487 p= 035	0.453 p= .051	**0.643** p= .003	-0.091 p= .710	-0.230 p= .344
carrying / moving	0.357 p= 133	0.324 p= .176	**0.637** p= .003	-0.162 p= .506	-0.395 p= .094
hand coordination	0.169 p= .489	0.065 p= 790	0.352 p= .140	-0.106 p= .667	-0.217 p= .372
vision	0 336 p= 159	0.284 p= .239	0.075 p= .760	-0.261 p= .281	0.391 p= .098
performance (other)	0.232 p= .340	0.148 p= .544	0.031 p= .900	-0.030 p= .902	0.429 p= .067
more mistakes	-0 063 p= .798	-0 080 p= 746	-0 242 p= .319	-0.259 p= .284	0.256 p= .289
longer time	0 306 p= 203	0.282 p= 242	0.506 p= .027	-0.216 p= .375	0.020 p= .935
not finished	0 227 p= 350	0.207 p= 394	-0.168 p= .491	-0.128 p= .602	0.231 p= .342
abandoned	0.185 p= 447	0.188 p= 440	0.063 p= .798	-0.206 p= .398	-0.115 p= .638
not attempt	-0.021 p= 931	-0 085 p= .730	0.197 p= .420	-0.271 p= .262	-0.306 p= .202
completion (other)	no data	no data	no data	no data	no data
cold / flu	0.039 p= 875	0.152 p= .534	-0.533 p= .019	0.027 p= .912	**0.727** p= .000
air quality	0.255 p= 291	0.402 p= .088	-0.006 p= .982	-0.045 p= .856	0.106 p= .667
noise	0.349 p= .143	0.362 p= .128	0.046 p= .851	0.049 p= .842	0.259 p= .284
vibration	0.201 p= 410	0.117 p= .633	0.522 p= .022	0.029 p= .907	-0.417 p= .076
too bright	-0 161 p= .510	-0.064 p= .794	-0.002 p= .993	0.307 p= .201	-0.001 p= .997
too dark	0.428 p= .068	0.486 p= 035	0.258 p= .287	0.211 p= .387	0.180 p= .461
too hot	-0.058 p= .814	0.195 p= .424	-0.064 p= .796	0.353 p= .139	0.317 p= .185
too cold	-0.084 p= .733	-0.043 p= .861	-0.364 p= .125	-0.165 p= .498	0.257 p= .288
other (other)	-0.193 p= .428	0.071 p= .774	-0.325 p= .175	0.456 p= .050	0.592 p= .008

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0.05), Shade = not significant (p > 0 05)

Table D.2.4. Correlation, Ship D, low MS group (page 3 of 9)

	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	-0 133 p= .588	0.095 p= .700	0.084 p= .731	**0.620** p= .005	0.256 p= .290	-0.226 p= .353
ship pitch	-0.212 p= .384	0.003 p= .989	0.043 p= .863	0.442 p= .058	0.206 p= .397	-0.388 p= .100
ship Laccn	-0.064 p= .796	0.066 p= .787	0.122 p= .618	0.410 p= .082	0.285 p= .236	-0.128 p= .601
ship roll	-0.042 p= .864	0.058 p= .814	0.142 p= .563	0.127 p= .604	0.221 p= .363	-0.342 p= .152
sleep quality	**0.681** p= .001	**0.722** p= .000	**0.754** p= .000	**0.693** p= .001	0.606 p= .006	0.098 p= .690
sleep time	**0.759** p= .000	**0.734** p= .000	**0.786** p= .000	0.549 p= .015	0.469 p= .043	0.008 p= .975
sleep motions	0.335 p= .161	0.417 p= .076	0.552 p= .014	0.529 p= .020	**0.680** p= .001	-0.180 p= .461
sleep MS	0 273 p= .257	0.534 p= .019	0.374 p= .114	0.208 p= .393	0.365 p= .124	-0.065 p= .793
sleep (other)	0.483 p= .036	0.264 p= .274	0.374 p= .115	0.014 p= .953	-0.284 p= .238	0.380 p= .109
mental fatigue	1	**0.778** p= .000	**0.880** p= .000	0.467 p= .044	0.525 p= .021	0.308 p= .200
physical fatigue	**0.778** p= .000	1	**0.774** p= .000	**0.705** p= .001	**0.653** p= .002	0.241 p= .320
sleepy	**0.880** p= .000	**0.774** p= .000	1	**0.643** p= .003	0.534 p= .018	0.272 p= .260
headache	0 467 p= .044	**0.705** p= .001	**0.643** p= .003	1	0.444 p= .057	0.207 p= .396
apathy	0.525 p= .021	**0.653** p= .002	0.534 p= .018	0.444 p= .057	1	-0.098 p= .691
tension	0 308 p= .200	0.241 p= .320	0 272 p= .260	0.207 p= .396	-0.098 p= .691	1
vomit	0.023 p= .926	-0 019 p= .937	0.200 p= .411	0.084 p= .733	0.177 p= .469	-0.062 p= .801
nausea	0.168 p= .493	0.142 p= .562	0.089 p= .716	0.104 p= .671	0.049 p= .843	0.115 p= .640
stomach awareness	0 359 p= .131	0.237 p= .328	0.387 p= .102	0.366 p= .123	0.107 p= .663	0.189 p= .439
symptom (other)	0.263 p= .277	-0.042 p= .863	0.014 p= .954	-0.380 p= .108	-0.379 p= .109	0.367 p= .122
MISC	0.291 p= .227	0.224 p= .357	0.220 p= .365	0.311 p= .195	0.228 p= .348	0.186 p= .446
MS medicine	0.250 p= .301	0.125 p= .611	0.149 p= .543	0.122 p= .620	-0.121 p= .621	0.534 p= .018
decision making	0.285 p= .237	0.157 p= .520	0.179 p= .463	0.041 p= .868	-0.130 p= .597	0.483 p= .036
concentration	0 571 p= .011	0.342 p= .152	0 480 p= .037	0.203 p= .404	-0.046 p= .851	0.585 p= .009
memory	0.548 p= .015	0.246 p= .311	0.359 p= .131	0.138 p= .575	-0.068 p= .783	0.599 p= .007
simple tasks	0.423 p= .071	0.060 p= .808	0.353 p= .138	-0.112 p= .648	-0.036 p= .885	0.393 p= .096
balance	0 144 p= .557	0.259 p= .284	0.302 p= .209	**0.624** p= .004	0.134 p= .584	-0.022 p= .927
carrying / moving	-0.026 p= .915	0.100 p= .683	0.137 p= .577	0.421 p= .072	0.112 p= .648	-0.231 p= .342
hand coordination	0 053 p= .828	0.131 p= .592	0.189 p= .438	0.342 p= .151	0.056 p= .820	0.438 p= .061
vision	0.383 p= .105	0.115 p= .640	0.334 p= .162	0.058 p= .814	0.001 p= .996	0.494 p= .032
performance (other)	0.380 p= .109	0.248 p= .306	0.188 p= .441	0.083 p= .736	0.098 p= .691	0.344 p= .149
more mistakes	0 197 p= .420	-0.066 p= .790	0 074 p= .763	-0.092 p= .708	-0.267 p= .270	**0.679** p= .001
longer time	0.327 p= .172	0.163 p= .505	0.424 p= .070	0.361 p= .129	0.076 p= .756	0.336 p= .160
not finished	0 257 p= .287	0.308 p= .199	0.097 p= .694	0.065 p= .791	0.046 p= .852	0.038 p= .878
abandoned	0 047 p= .849	0.121 p= .621	-0.061 p= .804	0.191 p= .435	0.075 p= .761	-0.158 p= .518
not attempt	-0.231 p= .341	-0.190 p= .435	-0 244 p= .315	0.103 p= .675	-0.000 p= .000	-0.168 p= .492
completion (other)	no data	no data	no data	no data	no data	no data
cold / flu	0.404 p= .086	0 221 p= .364	0.169 p= .488	0.049 p= .842	-0.361 p= .129	0.375 p= .114
air quality	0 528 p= .020	0.339 p= .155	0.273 p= .259	0.034 p= .889	0.215 p= .377	0.346 p= .147
noise	0.525 p= .021	0.578 p= .010	0.313 p= .191	0.336 p= .160	0.265 p= .274	0.342 p= .152
vibration	0.081 p= .743	0.147 p= .549	0.126 p= .608	0.253 p= .296	0.425 p= .070	-0.124 p= .612
too bright	-0 319 p= .183	-0.156 p= .524	-0.273 p= .257	-0.199 p= .415	-0.292 p= .224	0.062 p= .800
too dark	**0.800** p= .000	**0.661** p= .002	**0.669** p= .002	0.400 p= .090	0.571 p= .011	0.324 p= .177
too hot	-0 014 p= .953	0.094 p= .701	0.033 p= .895	-0.067 p= .786	-0.210 p= .387	0.182 p= .508
too cold	0.261 p= .280	0.117 p= .632	0.078 p= .751	-0.031 p= .901	-0.149 p= .543	0.590 p= .008
other (other)	0.352 p= .140	0.065 p= .791	0.227 p= .350	-0.346 p= .147	-0.139 p= .570	0.220 p= .365

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 2 4: Correlation, Ship D, low MS group (page 4 of 9)

	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	0.168 p= .493	0.072 p= .770	0.157 p= .522	**-0.687** p= .001	0.145 p= .553	-0.117 p= .632
ship pitch	0.306 p= .203	0.174 p= .477	0.233 p= .337	-0.609 p= .006	0.158 p= .518	-0.318 p= .185
ship Laccn	0.369 p= .120	-0.005 p= .983	0.085 p= .729	**-0.727** p= .000	0.053 p= .829	-0.082 p= .738
ship roll	0.411 p= .081	0.233 p= .338	0.189 p= .439	-0.465 p= .045	-0.041 p= .869	-0.456 p= .050
sleep quality	-0.052 p= .832	-0.149 p= .542	0.104 p= .673	-0.295 p= .221	0.343 p= .150	0.399 p= .090
sleep time	-0.105 p= .668	-0.011 p= .965	0.199 p= .415	-0.057 p= .816	0.283 p= .240	0.250 p= .302
sleep motions	0.221 p= .363	0.083 p= .737	0.348 p= .144	-0.521 p= .022	0.398 p= .091	-0.022 p= .930
sleep MS	-0.003 p= .992	0.324 p= .177	0.199 p= .414	0.126 p= .609	0.086 p= .726	-0.240 p= .322
sleep (other)	-0.175 p= .473	0.108 p= .660	0.009 p= .970	0.578 p= .009	-0.094 p= .700	0.244 p= .315
mental fatigue	0.023 p= .926	0.168 p= .493	0.359 p= .131	0.263 p= .277	0.291 p= .227	0.250 p= .301
physical fatigue	-0.019 p= .937	0.142 p= .562	0.237 p= .329	-0.042 p= .863	0.224 p= .357	0.125 p= .611
sleepy	0.200 p= .411	0.089 p= .716	0.387 p= .102	0.014 p= .954	0.220 p= .365	0.149 p= .543
headache	0.084 p= .733	0.104 p= .671	0.365 p= .123	-0.380 p= .109	0.311 p= .195	0.122 p= .620
apathy	0.177 p= .469	0.049 p= .843	0.107 p= .663	-0.379 p= .109	0.228 p= .348	-0.121 p= .621
tension	-0.062 p= .801	0.115 p= .640	0.189 p= .439	0.367 p= .122	0.186 p= .446	0.534 p= .018
vomit	1	-0.007 p= .977	0.250 p= .303	-0.181 p= .458	0.120 p= .624	-0.325 p= .174
nausea	-0.007 p= .977	1	**0.780** p= .000	0.324 p= .176	0.442 p= .058	-0.368 p= .121
stomach awareness	0.250 p= .303	**0.780** p= .000	1	0.333 p= .164	**0.690** p= .001	-0.175 p= .475
symptom (other)	-0.181 p= .458	0.324 p= .176	0.333 p= .164	1	0.244 p= .313	0.127 p= .605
MISC	0.120 p= .624	0.442 p= .058	**0.690** p= .001	0.244 p= .313	1	0.237 p= .328
MS medicine	-0.325 p= .174	-0.368 p= .121	-0.175 p= .475	0.127 p= .605	0.237 p= .328	1
decision making	-0.238 p= .325	0.133 p= .588	0.343 p= .151	0.502 p= .029	0.390 p= .099	0.352 p= .139
concentration	-0.283 p= .240	0.177 p= .469	0.356 p= .134	0.598 p= .007	0.223 p= .359	0.351 p= .141
memory	-0.225 p= .354	0.252 p= .298	0.377 p= .111	0.519 p= .023	0.485 p= .035	**0.627** p= .004
simple tasks	-0.213 p= .382	0.409 p= .082	0.483 p= .036	**0.640** p= .003	0.326 p= .173	0.208 p= .393
balance	-0.136 p= .579	0.303 p= .208	0.543 p= .016	-0.302 p= .209	0.520 p= .022	0.096 p= .696
carrying / moving	-0.004 p= .987	0.236 p= .330	0.477 p= .039	-0.380 p= .109	0.440 p= .059	-0.057 p= .816
hand coordination	-0.043 p= .862	0.240 p= .323	0.481 p= .037	-0.088 p= .719	0.398 p= .091	0.248 p= .305
vision	-0.175 p= .474	-0.107 p= .662	0.138 p= .579	0.341 p= .153	0.222 p= .361	0.552 p= .014
performance (other)	-0.118 p= .629	0.496 p= .031	0.327 p= .172	0.318 p= .184	0.360 p= .130	0.224 p= .357
more mistakes	-0.155 p= .526	0.056 p= .820	0.178 p= .466	0.459 p= .048	0.272 p= .259	**0.617** p= .005
longer time	0.328 p= .170	0.440 p= .059	**0.712** p= .001	0.011 p= .966	0.498 p= .030	0.105 p= .670
not finished	-0.095 p= .700	-0.218 p= .371	-0.059 p= .811	0.291 p= .227	0.123 p= .616	0.292 p= .225
abandoned	-0.112 p= .648	0.087 p= .722	0.200 p= .411	0.008 p= .974	0.419 p= .074	0.141 p= .565
not attempt	-0.086 p= .725	0.404 p= .086	0.365 p= .124	-0.195 p= .424	0.428 p= .068	-0.139 p= .569
completion (other)	no data	no data	no data	no data	no data	no data
cold / flu	-0.305 p= .204	0.105 p= .668	0.061 p= .803	0.586 p= .008	0.070 p= .775	0.416 p= .076
air quality	-0.254 p= .294	0.014 p= .954	0.141 p= .565	0.410 p= .081	0.352 p= .139	0.397 p= .092
noise	-0.095 p= .700	0.323 p= .178	0.362 p= .127	0.299 p= .214	0.547 p= .015	0.187 p= .443
vibration	0.094 p= .703	0.412 p= .080	0.448 p= .054	-0.278 p= .248	0.550 p= .015	-0.151 p= .538
too bright	-0.339 p= .156	0.396 p= .093	0.180 p= .462	0.253 p= .296	0.302 p= .209	0.094 p= .703
too dark	0.197 p= .419	0.099 p= .686	0.380 p= .109	0.290 p= .229	0.328 p= .170	0.034 p= .891
too hot	-0.385 p= .103	0.473 p= .041	0.100 p= .684	0.197 p= .418	-0.033 p= .895	-0.140 p= .568
too cold	-0.112 p= .647	-0.147 p= .549	0.133 p= .587	0.590 p= .008	0.122 p= .619	0.419 p= .074
other (other)	-0.188 p= .441	0.389 p= .100	0.249 p= .303	**0.787** p= .000	0.027 p= .914	-0.127 p= .605

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.4 Correlation, Ship D, low MS group (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	-0.396 p= .093	-0.316 p= .188	-0.172 p= .481	-0.315 p= .188
ship pitch	-0 465 p= 045	-0.425 p= .069	-0.241 p= .320	-0.256 p= 289
ship Laccn	-0.182 p= .455	-0.269 p= .265	-0.040 p= .871	-0.289 p= .231
ship roll	-0.179 p= .464	-0.235 p= .333	-0.116 p= .635	-0.130 p= .595
sleep quality	0.131 p= .593	0.254 p= .293	0.257 p= .288	0.035 p= .886
sleep time	0.258 p= .286	0.374 p= .115	0.268 p= .267	0.158 p= .518
sleep motions	-0.044 p= .857	-0.113 p= .646	-0.047 p= .848	0.058 p= .815
sleep MS	-0.174 p= .477	0.069 p= .777	-0.136 p= .579	0.093 p= .704
sleep (other)	0.214 p= .378	0.598 p= .007	0.504 p= .028	0.382 p= .106
mental fatigue	0.285 p= .237	0.571 p= .011	0.548 p= .015	0.423 p= .071
physical fatigue	0.157 p= .520	0.342 p= .152	0.246 p= .311	0.060 p= .808
sleepy	0.179 p= .463	0.480 p= .037	0.359 p= .131	0.353 p= .138
headache	0.041 p= .868	0.203 p= .404	0.138 p= .575	-0.112 p= .648
apathy	-0.130 p= .597	-0.046 p= .851	-0.068 p= .783	-0.036 p= .885
tension	0.483 p= .036	0.585 p= .009	0.599 p= .007	0.393 p= .096
vomit	-0.238 p= .325	-0.283 p= .240	-0.225 p= .354	-0.213 p= .382
nausea	0.133 p= .588	0.177 p= .469	0.252 p= .298	0.409 p= .082
stomach awareness	0.343 p= .151	0.356 p= .134	0.377 p= .111	0.483 p= .036
symptom (other)	0.502 p= .029	0.598 p= .007	0.519 p= .023	**0.640 p= .003**
MISC	0.390 p= .099	0.223 p= .359	0.485 p= .035	0.326 p= .173
MS medicine	0.352 p= .139	0.351 p= .141	**0.627 p= .004**	0.208 p= .393
decision making	1	**0.787 p= .000**	**0.639 p= .003**	0.564 p= .012
concentration	**0.787 p= .000**	1	**0.751 p= .000**	**0.697 p= .001**
memory	**0.639 p= .003**	**0.751 p= .000**	1	**0.697 p= .001**
simple tasks	0.564 p= .012	**0.697 p= .001**	**0.697 p= .001**	1
balance	0.319 p= .183	0.169 p= .490	0.239 p= .324	0.114 p= .643
carrying / moving	0.235 p= .332	-0.039 p= .874	0.035 p= .886	-0.041 p= .867
hand coordination	0.554 p= .014	0.407 p= .084	0.441 p= .059	0.286 p= .236
vision	**0.703 p= .001**	**0.778 p= .000**	**0.735 p= .000**	**0.658 p= .002**
performance (other)	0.114 p= .641	0.214 p= .379	0.502 p= .028	0.414 p= .078
more mistakes	0.419 p= .074	0.489 p= .034	**0.689 p= .001**	0.430 p= .066
longer time	0.310 p= .196	0.263 p= .277	0.436 p= .062	0.358 p= .132
not finished	0.410 p= .081	0.273 p= .258	0.231 p= .342	0.092 p= .708
abandoned	0.495 p= .031	0.266 p= .271	0.294 p= .223	0.000 p= .999
not attempt	0.252 p= .297	0.051 p= .836	0.175 p= .475	-0.020 p= .934
completion (other)	no data	no data	no data	no data
cold / flu	0.373 p= .115	0.522 p= .022	0.583 p= .009	0.307 p= .201
air quality	**0.682 p= .001**	0.565 p= .012	0.518 p= .023	0.344 p= .149
noise	0.398 p= .091	0.375 p= .114	0.517 p= .023	0.103 p= .675
vibration	0.139 p= .571	-0.018 p= .942	0.185 p= .449	0.062 p= .800
too bright	0.284 p= .238	0.053 p= .829	0.120 p= .624	0.368 p= .121
too dark	0.348 p= .144	0.493 p= .032	0.357 p= .134	0.309 p= .197
too hot	0.310 p= .196	0.283 p= .241	0.129 p= .599	0.300 p= .212
too cold	0.603 p= .006	**0.678 p= .001**	0.530 p= .020	0.327 p= .172
other (other)	0.259 p= .284	0.523 p= .022	0.332 p= .166	**0.622 p= .004**

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), ▨ shade = not significant ($p > 0.05$)

Table D 2 4 Correlation, Ship D, low MS group (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	0.574 p= .010	0.501 p= .029	0.186 p= .446	-0.120 p= .625	0.060 p= .808
ship pitch	0.529 p= .020	0.523 p= .021	0.148 p= .544	-0.240 p= .323	0.008 p= .975
ship Laccn	0.526 p= .021	0.551 p= 015	0.389 p= .100	0.016 p= .950	-0.028 p= .910
ship roll	0.366 p= .124	0.458 p= 048	0.281 p= .243	-0.163 p= .505	-0.157 p= .521
sleep quality	0.487 p= .035	0.357 p= .133	0.169 p= .489	0.336 p= .159	0.232 p= .340
sleep time	0.453 p= .051	0.324 p= .176	0.065 p= .790	0.284 p= .239	0.148 p= .544
sleep motions	**0.643** p= .003	**0.637** p= 003	0.352 p= .140	0.075 p= .760	0.031 p= .900
sleep MS	-0.091 p= .710	-0.162 p= .506	-0.106 p= .667	-0.261 p= .281	-0.030 p= .902
sleep (other)	-0.230 p= .344	-0.395 p= .094	-0.217 p= .372	0.391 p= .098	0.429 p= .067
mental fatigue	0.144 p= .557	-0.026 p= .915	0.053 p= .828	0.383 p= .105	0.380 p= .109
physical fatigue	0.259 p= .284	0.100 p= .683	0.131 p= .592	0.115 p= .640	0.248 p= .306
sleepy	0.302 p= .209	0.137 p= .577	0.189 p= .438	0.334 p= .162	0.188 p= 441
headache	**0.624** p= .004	0.421 p= .072	0.342 p= .151	0.058 p= .814	0.083 p= .736
apathy	0.134 p= 584	0.112 p= .648	0.056 p= .820	0.001 p= .998	0.098 p= 691
tension	-0.022 p= .927	-0.231 p= .342	0.438 p= .061	0.494 p= 032	0.344 p= 149
vomit	-0.136 p= .579	-0.004 p= 987	-0.043 p= .862	-0.175 p= .474	-0.118 p= .629
nausea	0.303 p= .208	0.236 p= .330	0.240 p= .323	-0.107 p= .662	0.496 p= 031
stomach awareness	0 543 p= .016	0.477 p= 039	0.481 p= 037	0.136 p= .579	0.327 p= .172
symptom (other)	-0.302 p= 209	-0.380 p= 109	-0.088 p= .719	0.341 p= 153	0.318 p= 184
MISC	0 520 p= 022	0.440 p= .059	0.398 p= .091	0.222 p= .361	0.360 p= .130
MS medicine	0.096 p= 696	-0.057 p= 816	0.248 p= .305	0.552 p= 014	0.224 p= .357
decision making	0 319 p= .183	0.235 p= .332	0.554 p= 014	**0.703** p= .001	0.114 p= 641
concentration	0.169 p= .490	-0.039 p= .874	0.407 p= .084	**0.778** p= 000	0.214 p= 379
memory	0.239 p= .324	0.035 p= .886	0.441 p= 059	**0.735** p= .000	0.502 p= .028
simple tasks	0.114 p= .643	-0.041 p= 867	0.286 p= .236	**0.658** p= 002	0.414 p= .078
balance	1	**0.923** p= 000	**0.655** p= 002	0.193 p= 429	0.110 p= .655
carrying / moving	**0.923** p= 000	1	**0.626** p= 004	0.076 p= .758	0.032 p= 898
hand coordination	**0.655** p= 002	**0.626** p= .004	1	0.432 p= 065	0.020 p= 936
vision	0.193 p= 429	0.076 p= .758	0.432 p= .065	1	0.350 p= 141
performance (other)	0.110 p= .655	0.032 p= .898	0.020 p= .936	0.350 p= .141	1
more mistakes	0.013 p= .958	-0.142 p= .563	0.383 p= .106	0.450 p= .053	0.174 p= 476
longer time	**0.640** p= 003	0.612 p= .005	0.598 p= 007	0.393 p= 096	0.471 p= 042
not finished	-0.048 p= .847	-0.025 p= .918	-0.120 p= .624	0.378 p= 111	0.295 p= 220
abandoned	0.440 p= 059	0.439 p= .060	0.300 p= 212	0.288 p= .232	-0.007 p= 979
not attempt	**0.620** p= 005	**0.680** p= 001	0.569 p= .011	0.107 p= .662	0.056 p= 821
completion (other)	no data	no data	no data	no data	no data
cold / flu	-0.167 p= .495	-0.323 p= .177	-0 115 p= .639	0.243 p= 318	0.311 p= 195
air quality	0.048 p= .844	-0.076 p= .759	0.171 p= .485	0.357 p= .134	-0.033 p= .892
noise	0.299 p= 214	0.206 p= .396	0.281 p= .244	0.183 p= .454	0.421 p= .072
vibration	0.595 p= 007	**0.631** p= .004	0.601 p= .006	-0.014 p= .955	0.002 p= .995
too bright	0.202 p= .408	0.151 p= .538	0.160 p= .513	0.069 p= .780	0.204 p= .401
too dark	0.006 p= 979	-0.116 p= .635	0.073 p= .768	0.276 p= .252	0.143 p= .559
too hot	0.192 p= 431	0.074 p= .764	0.144 p= .556	0.010 p= .969	0.071 p= .773
too cold	-0.159 p= 515	-0.261 p= .280	0.278 p= .249	0.562 p= 012	0.011 p= .965
other (other)	-0.337 p= 159	-0.404 p= .087	-0.093 p= .704	0.148 p= .545	0.133 p= .587

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0.05), shade = not significant (p > 0 05)

Table D 2.4: Correlation, Ship D, low MS group

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	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	-0.282 p= 242	0.339 p= .155	-0.239 p= .324	0.140 p= .567	0.392 p= .097	no data
ship pitch	-0.292 p= 225	0.354 p= .137	-0.285 p= .237	0.128 p= .601	0.423 p= .071	no data
ship Laccn	-0.120 p= .625	0.516 p= .024	-0.279 p= .247	0.196 p= .422	0.479 p= .038	no data
ship roll	0.214 p= .379	0.387 p= .102	-0.386 p= .103	0.127 p= .604	0.449 p= .054	no data
sleep quality	-0.063 p= .798	0.306 p= .203	0.227 p= .350	0.185 p= .447	-0.021 p= .931	no data
sleep time	-0.080 p= 746	0.282 p= .242	0.207 p= .394	0.188 p= .440	-0.085 p= .730	no data
sleep motions	-0.242 p= .319	0.506 p= .027	-0.168 p= .491	0.063 p= .798	0.197 p= .420	no data
sleep MS	-0.259 p= 284	-0.216 p= 375	-0.128 p= .602	-0.206 p= .398	-0.271 p= .262	no data
sleep (other)	0.256 p= 289	0.020 p= .935	0.231 p= .342	-0.115 p= 638	-0.306 p= .202	no data
mental fatigue	0.197 p= 420	0.327 p= 172	0.257 p= .287	0.047 p= .849	-0.231 p= .341	no data
physical fatigue	-0.066 p= .790	0.163 p= 505	0.308 p= .199	0.121 p= .621	-0.190 p= .435	no data
sleepy	0.074 p= 763	0.424 p= .070	0.097 p= .694	-0.061 p= .804	-0.244 p= .315	no data
headache	-0.092 p= 709	0.361 p= 129	0.065 p= .791	0.191 p= .435	0.103 p= .675	no data
apathy	-0.267 p= .270	0.076 p= .758	0.046 p= .852	0.075 p= .761	-0.000 p= .000	no data
tension	**0.679** p= .001	0.336 p= 160	0.038 p= .878	-0.158 p= 518	-0.168 p= .492	no data
vomit	-0.155 p= .526	0.328 p= .170	-0.095 p= .700	-0.112 p= .648	-0.086 p= .725	no data
nausea	0.056 p= .820	0 440 p= .059	-0.218 p= .371	0.087 p= .722	0.404 p= .086	no data
stomach awareness	0.178 p= 466	**0.712** p= 001	-0.059 p= .811	0.200 p= 411	0.365 p= .124	no data
symptom (other)	0.459 p= 048	0.011 p= .966	0.291 p= .227	0.008 p= 974	-0.195 p= 424	no data
MISC	0.272 p= .259	0.498 p= .030	0.123 p= .618	0.419 p= .074	0.428 p= .068	no data
MS medicine	**0.617** p= 005	0.105 p= .670	0.292 p= .225	0.141 p= .565	-0.139 p= .569	no data
decision making	0.419 p= 074	0.310 p= .196	0.410 p= 081	0.495 p= .031	0.252 p= .297	no data
concentration	0.489 p= 034	0.263 p= .277	0.273 p= 258	0.266 p= 271	0.051 p= .835	no data
memory	**0.689** p= 001	0.436 p= .062	0.231 p= 342	0.294 p= 223	0.175 p= .475	no data
simple tasks	0.430 p= 066	0.358 p= .132	0.092 p= .708	0.000 p= 999	-0.020 p= .934	no data
balance	0.013 p= .958	**0.640** p= .003	-0.048 p= .847	0.440 p= .059	**0.620** p= 005	no data
carrying / moving	-0.142 p= 583	0 612 p= 005	-0.025 p= .918	0.439 p= .060	**0.680** p= 001	no data
hand coordination	0.383 p= 106	0 598 p= 007	-0.120 p= .624	0.300 p= .212	0.569 p= .011	no data
vision	0.450 p= 053	0.393 p= .096	0.378 p= .111	0.288 p= .232	0.107 p= .662	no data
performance (other)	0.174 p= 476	0 471 p= .042	0.295 p= 220	-0.007 p= 979	0.056 p= 821	no data
more mistakes	1	0.290 p= .229	0.027 p= .912	0.151 p= .538	0.087 p= .723	no data
longer time	0.290 p= .229	1	-0.075 p= .759	0.112 p= .648	0.378 p= 111	no data
not finished	0.027 p= 912	-0.075 p= 759	1	0.525 p= .021	-0.147 p= .548	no data
abandoned	0.151 p= 538	0.112 p= 648	0.525 p= 021	1	**0.650** p= 003	no data
not attempt	0.087 p= .723	0.378 p= .111	-0.147 p= .548	**0.650** p= .003	1	no data
completion (other)	no data	no data	no data	no data	no data	1
cold / flu	0.274 p= 256	-0.130 p= .596	0.385 p= 104	0.073 p= 768	-0.258 p= .287	no data
air quality	0.491 p= 033	-0.006 p= 981	0.321 p= .181	0.431 p= .065	0.022 p= .929	no data
noise	0.396 p= .093	0.319 p= .184	0.353 p= .138	0.450 p= .053	0.307 p= .202	no data
vibration	0.124 p= .612	0.401 p= .089	-0.236 p= .331	0.472 p= 041	**0.784** p= 000	no data
too bright	-0.002 p= .992	0.006 p= 982	0.007 p= 977	0.088 p= .719	0.133 p= .587	no data
too dark	0.057 p= .816	0.200 p= .413	0.215 p= .377	-0.010 p= .969	-0.257 p= .288	no data
too hot	0.037 p= 881	0.023 p= .926	-0.254 p= .295	0.005 p= .983	0.159 p= 516	no data
too cold	**0.618** p= .005	0.069 p= .778	0.367 p= .123	0.208 p= 393	-0.106 p= .666	no data
other (other)	0.248 p= .306	-0 111 p= .652	-0.121 p= .620	-0.268 p= .267	-0.224 p= .357	no data

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2 4: Correlation, Ship D, low MS group

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	cold / flu	air quality	noise	vibration
ship Vaccn	-0.448 p= .055	-0 507 p= 027	-0.074 p= .762	0.328 p= .171
ship pitch	-0.555 p= 014	-0.593 p= 007	-0.074 p= .764	0.448 p= 055
ship Laccn	-0.515 p= .024	-0 288 p= .232	0.026 p= .915	0.505 p= 027
ship roll	-0.480 p= 037	-0.274 p= .256	0.038 p= .878	0.588 p= 008
sleep quality	0.039 p= .875	0.255 p= .291	0.349 p= .143	0.201 p= 410
sleep time	0.152 p= .534	0.402 p= .088	0.362 p= .128	0.117 p= .633
sleep motions	-0.533 p= 019	-0.006 p= .982	0.046 p= .851	0.522 p= .022
sleep MS	0.027 p= .912	-0.045 p= 856	0.049 p= 842	0.029 p= .907
sleep (other)	0.727 p= 000	0.106 p= .667	0.259 p= .284	-0.417 p= .076
mental fatigue	0.404 p= 086	0.528 p= 020	0.525 p= 021	0.081 p= 743
physical fatigue	0.221 p= .364	0.339 p= .155	0.578 p= 010	0.147 p= .549
sleepy	0.169 p= .488	0.273 p= .259	0.313 p= .191	0.126 p= .608
headache	0.049 p= 842	0.034 p= .889	0.336 p= 160	0.253 p= .296
apathy	-0 361 p= 129	0.215 p= .377	0.265 p= .274	0.425 p= .070
tension	0.375 p= 114	0.346 p= .147	0.342 p= .152	-0.124 p= 612
vomit	-0 305 p= 204	-0.254 p= .294	-0.095 p= 700	0.094 p= .703
nausea	0.105 p= 668	0.014 p= .954	0.323 p= .178	0.412 p= 080
stomach awareness	0.061 p= 803	0.141 p= 565	0.362 p= 127	0.448 p= .054
symptom (other)	0.586 p= 008	0.410 p= .081	0.299 p= .214	-0.278 p= .248
MISC	0.070 p= 775	0.352 p= .139	0.547 p= 015	0.550 p= 015
MS medicine	0.416 p= .076	0.397 p= .092	0.187 p= 443	-0.151 p= 538
decision making	0.373 p= 115	0.682 p= .001	0.398 p= .091	0.139 p= 571
concentration	0 522 p= 022	0.565 p= 012	0.375 p= 114	-0.018 p= .942
memory	0.583 p= 009	0.518 p= 023	0.517 p= .023	0.185 p= 449
simple tasks	0.307 p= 201	0 344 p= .149	0.103 p= 675	0.062 p= 800
balance	-0.167 p= 495	0.048 p= .844	0.299 p= .214	0.595 p= 007
carrying / moving	-0.323 p= 177	-0.076 p= 759	0.206 p= .396	0.631 p= 004
hand coordination	-0.115 p= .639	0.171 p= .485	0.281 p= .244	0.601 p= 006
vision	0 243 p= .316	0.357 p= .134	0.183 p= .454	-0.014 p= .955
performance (other)	0 311 p= .195	-0.033 p= 892	0.421 p= 072	0.002 p= .995
more mistakes	0.274 p= .256	0.491 p= .033	0.396 p= 093	0.124 p= 612
longer time	-0 130 p= .596	-0.006 p= .981	0.319 p= 184	0.401 p= .089
not finished	0.385 p= .104	0.321 p= 181	0.353 p= .138	-0.236 p= .331
abandoned	0.073 p= 768	0.431 p= .065	0.450 p= .053	0.472 p= 041
not attempt	-0.258 p= .287	0.022 p= .929	0.307 p= .202	0.784 p= 000
completion (other)	no data	no data	no data	no data
cold / flu	1	0.359 p= 131	0.290 p= .229	-0.369 p= .120
air quality	0.359 p= .131	1	0.515 p= .024	0.168 p= .491
noise	0.290 p= 229	0.515 p= .024	1	0.443 p= .057
vibration	-0.369 p= .120	0.168 p= 491	0.443 p= .057	1
too bright	0.078 p= .750	-0.039 p= .873	-0.130 p= 595	0.023 p= .925
too dark	0.240 p= .321	0.555 p= 014	0.461 p= .047	0.048 p= .846
too hot	0.162 p= .507	0.137 p= .575	0.083 p= .736	0.105 p= .669
too cold	0.341 p= .154	0.539 p= 017	0.357 p= .134	-0.201 p= .409
other (other)	0.435 p= .063	0.283 p= .240	0.131 p= .593	-0.104 p= .672

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0\ 05$), shade = not significant ($p > 0.05$)

Table D.2.4: Correlation, Ship D, low MS group

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	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	-0 115 p= .640	-0.173 p= .479	-0.211 p= 385	-0.383 p= .106	**-0.686 p= 001**
ship pitch	-0.040 p= 869	-0.268 p= .267	-0.144 p= .556	-0.495 p= .031	-0.551 p= .014
ship Laccn	-0.262 p= 279	-0.103 p= .675	-0.136 p= .579	-0.298 p= .215	**-0.672 p= .002**
ship roll	-0.131 p= .593	-0.108 p= .659	0.179 p= .463	-0.404 p= .087	-0.201 p= .410
sleep quality	-0 161 p= 510	0.428 p= .068	-0.058 p= .814	-0.084 p= 733	-0.193 p= .428
sleep time	-0 064 p= 794	0.486 p= .035	0.195 p= .424	-0.043 p= .861	0.071 p= .774
sleep motions	-0.002 p= 993	0.258 p= .287	-0.064 p= .796	-0.364 p= .125	-0.325 p= 175
sleep MS	0.307 p= 201	0.211 p= 387	0.353 p= .139	-0.165 p= .498	0.456 p= .050
sleep (other)	-0.001 p= .997	0.180 p= .461	0.317 p= .186	0.257 p= .288	0.592 p= 008
mental fatigue	-0.319 p= .183	**0.800 p= .000**	-0.014 p= .953	0.261 p= .280	0.352 p= .140
physical fatigue	-0.156 p= .524	**0.661 p= 002**	0.094 p= .701	0.117 p= .632	0.065 p= 791
sleepy	-0.273 p= .257	**0.669 p= 002**	0.033 p= .895	0.078 p= .751	0.227 p= .350
headache	-0.199 p= 415	0.400 p= 090	-0.067 p= .786	-0.031 p= 901	-0.346 p= .147
apathy	-0.292 p= 224	0.571 p= 011	-0.210 p= .387	-0.149 p= 543	-0.139 p= 570
tension	0.062 p= 800	0.324 p= .177	0.162 p= 508	0.590 p= .008	0.220 p= .365
vomit	-0.339 p= 156	0.197 p= .419	-0.385 p= .103	-0.112 p= 647	-0.188 p= 441
nausea	0.396 p= 093	0.099 p= .686	0.473 p= 041	-0.147 p= 549	0.389 p= .100
stomach awareness	0.180 p= .462	0.380 p= 109	0.100 p= .684	0.133 p= .587	0.249 p= .303
symptom (other)	0.253 p= 296	0.290 p= 229	0.197 p= .418	0.590 p= 008	**0.767 p= 000**
MISC	0 302 p= 209	0.328 p= .170	-0.033 p= 895	0.122 p= 619	0.027 p= 914
MS medicine	0.094 p= 703	0.034 p= .891	-0.140 p= 566	0.419 p= .074	-0.127 p= .605
decision making	0.284 p= 238	0.348 p= .144	0.310 p= .196	0.603 p= .006	0.259 p= .284
concentration	0.053 p= 829	0.493 p= 032	0.283 p= .241	**0.678 p= .001**	0.523 p= .022
memory	0.120 p= 624	0.357 p= 134	0.129 p= 599	0.530 p= 020	0.332 p= .166
simple tasks	0.368 p= .121	0.309 p= .197	0.300 p= .212	0.327 p= .172	**0.622 p= 004**
balance	0.202 p= 408	0.006 p= .979	0.192 p= .431	-0.159 p= .515	-0.337 p= .159
carrying / moving	0.151 p= .538	-0.116 p= .635	0.074 p= .764	-0.261 p= .280	-0.404 p= 087
hand coordination	0.160 p= 513	0.073 p= 766	0.144 p= .556	0.278 p= .249	-0.093 p= .704
vision	0.069 p= 780	0.276 p= .252	0.010 p= .969	0.562 p= 012	0.148 p= .545
performance (other)	0.204 p= 401	0.143 p= .559	0.071 p= .773	0.011 p= 965	0.133 p= 587
more mistakes	-0.002 p= 992	0.057 p= 816	0.037 p= .881	**0.618 p= 005**	0.248 p= .308
longer time	0.006 p= .982	0.200 p= .413	0.023 p= .926	0.069 p= .778	-0.111 p= 652
not finished	0.007 p= .977	0.215 p= .377	-0.254 p= 295	0.367 p= 123	-0.121 p= 620
abandoned	0.088 p= 719	-0.010 p= 969	0.005 p= .983	0.208 p= 393	-0.268 p= .267
not attempt	0 133 p= .587	-0.257 p= .288	0.159 p= 516	-0.106 p= .666	-0.224 p= .357
completion (other)	no data	no data	no data	no data	no data
cold / flu	0.078 p= .750	0.240 p= .321	0.162 p= 507	0.341 p= .154	0.435 p= .063
air quality	-0.039 p= .873	0.555 p= 014	0.137 p= 575	0.539 p= 017	0.283 p= 240
noise	-0.130 p= .595	0.461 p= 047	0.083 p= .736	0.357 p= .134	0.131 p= 593
vibration	0.023 p= 925	0.048 p= .846	0.105 p= .669	-0.201 p= .409	-0.104 p= .672
too bright	1	-0.389 p= .100	**0.624 p= 004**	-0.195 p= 423	0.184 p= 450
too dark	-0.389 p= 100	1	-0.206 p= 398	0.459 p= .048	0.272 p= 260
too hot	**0.624 p= .004**	-0.206 p= .398	1	-0.223 p= .360	0.444 p= 057
too cold	-0 195 p= .423	0.459 p= 048	-0.223 p= .360	1	0.227 p= .350
other (other)	0.184 p= .450	0.272 p= 260	0.444 p= .057	0.227 p= 350	1

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2 5. Correlation, Ship D, high MS group (page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914** p= 000	**0.766** p= .000	0.434 p= .063
ship pitch	**0.914** p= .000	1	**0.753** p= .000	**0.638** p= .003
ship Laccn	**0.766** p= 000	**0.753** p= .000	1	**0.775** p= 000
ship roll	0.434 p= 063	**0.638** p= .003	**0.775** p= 000	1
sleep quality	0.428 p= 067	0.291 p= .228	0.574 p= 010	0.276 p= .253
sleep time	0.398 p= .092	0.299 p= .214	0.451 p= .053	0.216 p= .375
sleep motions	0 562 p= 012	0.534 p= .018	**0.708** p= 001	0.522 p= .022
sleep MS	0.536 p= 018	0.512 p= .025	0.586 p= 008	0.442 p= .058
sleep (other)	-0.280 p= .246	-0.324 p= .175	-0.195 p= 423	-0.223 p= .359
mental fatigue	0.319 p= .184	0.366 p= .123	0.532 p= 019	0.613 p= .005
physical fatigue	0.440 p= 059	0 312 p= .194	0.414 p= .078	0.285 p= .238
sleepy	0.358 p= 133	0.313 p= .191	0.553 p= 014	0.471 p= 042
headache	**0.668** p= 002	0.525 p= .021	**0.677** p= 001	0.351 p= .141
apathy	0.581 p= 009	0.425 p= .070	0.420 p= 073	0.178 p= 466
tension	0 586 p= 008	0.510 p= .026	0.579 p= 009	0.429 p= .067
vomit	0.609 p= 006	0.603 p= 006	0.584 p= .009	0.370 p= .119
nausea	**0.685** p= 001	0.613 p= .005	0.498 p= 030	0.256 p= .290
stomach awareness	**0.816** p= 000	**0.767** p= 000	**0.674** p= 002	0.450 p= 053
symptom (other)	-0.308 p= 199	-0 199 p= .415	-0.032 p= .896	0.035 p= 886
MISC	**0.831** p= 000	**0.783** p= .000	**0.784** p= 000	0.553 p= 014
MS medicine	0.016 p= .949	0.249 p= .304	-0.221 p= .363	0.231 p= .341
decision making	0.427 p= .068	0.317 p= .186	0.259 p= 284	0.105 p= 668
concentration	0.125 p= 609	0.037 p= .880	-0.017 p= .945	-0 038 p= 876
memory	-0.186 p= .445	-0.212 p= .383	-0.330 p= .167	-0.206 p= .397
simple tasks	0.159 p= 515	0.043 p= 862	0.165 p= .499	0.021 p= 933
balance	**0.666** p= 002	0.558 p= .013	0.579 p= .009	0.379 p= .109
carrying / moving	**0.635** p= .003	0.541 p= .017	**0.691** p= .001	0.489 p= 033
hand coordination	0.425 p= 070	0.278 p= .249	0.263 p= 276	0.109 p= .657
vision	-0.154 p= 530	-0.241 p= .320	-0.241 p= .319	-0.212 p= .384
performance (other)	0 534 p= 018	0.332 p= 165	0.177 p= 468	-0.148 p= 545
more mistakes	0 223 p= 358	0.037 p= 880	0.117 p= .634	-0.116 p= .637
longer time	0.401 p= .088	0.363 p= .126	0.350 p= .142	0.316 p= .188
not finished	0.351 p= 140	0.337 p= .159	0 537 p= 018	0.408 p= 083
abandoned	**0.787** p= 000	**0.772** p= .000	0 584 p= .009	0.370 p= 119
not attempt	0.369 p= 120	0 426 p= .069	0.420 p= 073	0.383 p= 105
completion (other)	0.369 p= .120	0.475 p= .040	0.574 p= 010	0.595 p= 007
cold / flu	-0.563 p= 012	-0 554 p= .014	-0.419 p= .074	-0.324 p= .176
air quality	0.314 p= 190	0.171 p= .485	0.104 p= .673	-0.158 p= .519
noise	-0.005 p= .983	0.030 p= .903	0.312 p= .194	0.387 p= .102
vibration	0.565 p= 012	0.530 p= 020	**0.716** p= 001	0.566 p= .012
too bright	0.093 p= .704	-0.104 p= .670	0.077 p= .754	-0.221 p= .362
too dark	0.212 p= .383	0.156 p= .524	0.398 p= 091	0.066 p= 788
too hot	0.362 p= .128	0.143 p= .559	0.344 p= .150	0.056 p= .820
too cold	-0.601 p= 007	-0.584 p= 009	**-0.690** p= 001	-0 595 p= 007
other (other)	0.454 p= .051	0.364 p= 126	0.151 p= .537	-0.014 p= .953

Legend **bold** = high significance ($p < 0\ 005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0\ 05$)

Table D 2.5· Correlation, Ship D, high MS group (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0.428 p= 087	0.398 p= .092	0.562 p= 012	0.536 p= 018	-0.280 p= .246
ship pitch	0.291 p= .228	0.299 p= .214	0.534 p= 018	0.512 p= .025	-0.324 p= .175
ship Laccn	0.574 p= .010	0.451 p= .053	**0.706** p= .001	0.586 p= 008	-0.195 p= .423
ship roll	0.276 p= .253	0.216 p= .375	0.522 p= .022	0.442 p= .058	-0.223 p= 359
sleep quality	1	**0.786** p= .000	**0.830** p= .000	0.611 p= .005	0.136 p= .578
sleep time	**0.786** p= .000	1	**0.656** p= .002	0.438 p= .061	0.231 p= .342
sleep motions	**0.830** p= 000	**0.656** p= .002	1	**0.796** p= 000	-0.064 p= 794
sleep MS	0 611 p= 005	0.438 p= .061	**0.796** p= .000	1	-0.276 p= .253
sleep (other)	0.136 p= .578	0.231 p= .342	-0.064 p= .794	-0.276 p= .253	1
mental fatigue	0.503 p= 028	0.506 p= .027	**0.638** p= .003	0.430 p= .066	-0.155 p= .526
physical fatigue	**0.690** p= 001	0.592 p= 008	0.509 p= .026	0.553 p= 014	-0.040 p= 872
sleepy	**0.637** p= 003	0 573 p= .010	0.514 p= .024	**0.631** p= 004	-0.093 p= 705
headache	0.593 p= 007	**0.681** p= .001	**0.714** p= 001	0.584 p= .009	-0.098 p= 689
apathy	0.383 p= 106	0.190 p= 437	0.271 p= .262	0.337 p= .158	-0.395 p= 094
tension	0.565 p= 012	0.578 p= 010	0.589 p= 008	0.422 p= .072	0.016 p= .948
vomit	0.579 p= 009	0.525 p= 021	**0.712** p= .001	**0.649** p= 003	-0.204 p= 403
nausea	0 470 p= 042	0 522 p= .022	**0.642** p= 003	0.330 p= .166	-0.003 p= .989
stomach awareness	0.593 p= 007	0.568 p= 011	**0.745** p= 000	0.527 p= 020	-0.134 p= 586
symptom (other)	-0.116 p= 636	0.180 p= .462	-0.170 p= .486	-0.237 p= .329	0.350 p= .142
MISC	0.524 p= 021	0.461 p= .047	**0.757** p= 000	0.588 p= 008	-0.295 p= 219
MS medicine	-0 493 p= 032	-0.439 p= .060	-0.231 p= .341	0.007 p= 976	-0.293 p= 223
decision making	0.209 p= 391	0.032 p= 896	0.108 p= 659	0.297 p= 216	-0.077 p= .755
concentration	0.304 p= .205	0.268 p= 267	0.118 p= .629	0.254 p= .293	0.038 p= .877
memory	-0.158 p= 518	-0.268 p= .268	-0.387 p= .102	-0.153 p= .531	0.181 p= 458
simple tasks	0.225 p= 354	0.044 p= 859	0.034 p= .890	0.268 p= .268	0.098 p= .691
balance	**0.713** p= 001	0.497 p= 030	**0.670** p= 002	**0.654** p= 002	-0.108 p= .661
carrying / moving	**0.653** p= 002	0 449 p= .054	**0.727** p= 000	**0.634** p= .004	-0.120 p= .625
hand coordination	0.356 p= 134	0.108 p= .660	0.357 p= .134	0.435 p= .062	-0.237 p= 330
vision	0.016 p= .949	-0 157 p= 520	-0.220 p= .365	-0.019 p= 939	0.164 p= .503
performance (other)	0.104 p= .673	-0.056 p= 820	0.039 p= .873	0.352 p= .140	-0.403 p= .087
more mistakes	0 300 p= 212	0.411 p= .081	0.228 p= .348	0.151 p= .537	-0.022 p= 928
longer time	0.393 p= .096	0.390 p= .099	0.468 p= 043	0.291 p= .227	-0.185 p= .448
not finished	0.308 p= 200	0 447 p= 055	0.365 p= .124	0.354 p= .138	0.311 p= 196
abandoned	0.385 p= 103	0.456 p= 050	**0.617** p= 005	0.432 p= .065	-0.085 p= 730
not attempt	0.164 p= .502	0.119 p= 628	0.319 p= .183	0.083 p= .736	-0.027 p= 912
completion (other)	0.175 p= .473	0.057 p= 817	0.245 p= .312	0.099 p= 687	-0.397 p= .092
cold / flu	-0.027 p= .914	-0.109 p= .657	-0.155 p= .526	-0.089 p= .718	0.412 p= .079
air quality	0.393 p= 096	0.104 p= .672	0.224 p= 357	0.227 p= .350	0.342 p= .152
noise	0.436 p= 062	0.183 p= .454	0.544 p= 016	0.523 p= .022	0.100 p= 685
vibration	**0.635** p= 003	**0.649** p= .003	**0.833** p= .000	**0.673** p= .002	-0.043 p= 860
too bright	**0.629** p= 004	0.399 p= .090	0.310 p= .196	0.401 p= .089	0.086 p= 726
too dark	0.360 p= 130	0.240 p= .323	0.262 p= .279	0.060 p= .808	-0.210 p= .387
too hot	0 458 p= .049	0.517 p= 023	0.457 p= .049	0.169 p= 490	0.233 p= 338
too cold	-0 520 p= 023	-0.414 p= .078	**-0.627** p= .004	-0.396 p= .094	-0 257 p= .289
other (other)	0.042 p= .864	-0.121 p= .622	-0.018 p= .942	0.225 p= .355	-0.165 p= .500

Legend bold = high significance (p < 0.005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2.5: Correlation, Ship D, high MS group (page 3 of 9)

	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	0.319 p= 184	0.440 p= 059	0.358 p= .133	**0.668** p= 002	0.581 p= 009	0 586 p= 008
ship pitch	0.366 p= .123	0.312 p= 194	0.313 p= 191	0.525 p= 021	0.425 p= .070	0.510 p= 026
ship Laccn	0.532 p= 019	0.414 p= .078	0.553 p= .014	**0.677** p= .001	0.420 p= 073	0.579 p= 009
ship roll	0.613 p= .005	0.285 p= .238	0.471 p= .042	0.351 p= .141	0.178 p= .466	0.429 p= .067
sleep quality	0 503 p= .028	**0.690** p= .001	**0.637** p= 003	0.593 p= .007	0.383 p= 106	0.565 p= 012
sleep time	0 506 p= 027	0.592 p= 006	0.573 p= 010	**0.681** p= 001	0.190 p= .437	0.578 p= 010
sleep motions	**0.638** p= 003	0.509 p= 026	0.514 p= 024	**0.714** p= 001	0.271 p= .262	0.589 p= .008
sleep MS	0.430 p= 066	0 553 p= .014	**0.631** p= .004	0.584 p= .009	0.337 p= .158	0.422 p= .072
sleep (other)	-0.155 p= 526	-0.040 p= .872	-0.093 p= .705	-0.098 p= .689	-0.395 p= .094	0.016 p= .948
mental fatigue	1	0.569 p= 011	0.512 p= .025	0.579 p= 009	0.240 p= .322	**0.754** p= 000
physical fatigue	0.569 p= .011	1	**0.834** p= 000	0.573 p= 010	**0.658** p= .002	**0.640** p= 003
sleepy	0 512 p= 025	**0.834** p= 000	1	0.532 p= 019	0.521 p= .022	0.493 p= 032
headache	0.579 p= .009	0.573 p= .010	0.532 p= 019	1	0.372 p= .116	**0.762** p= 000
apathy	0 240 p= .322	**0.658** p= 002	0.521 p= .022	0.372 p= 116	1	0.371 p= 118
tension	**0.754** p= 000	**0.640** p= 003	0 493 p= .032	**0.762** p= .000	0.371 p= 118	1
vomit	0 475 p= 040	0.520 p= 023	0.478 p= 038	0.574 p= .010	0.474 p= 040	0.431 p= 065
nausea	0.497 p= 031	0.308 p= 199	0.199 p= 413	**0.742** p= 000	0.302 p= .209	**0.704** p= 001
stomach awareness	**0.617** p= 005	0.480 p= 038	0.409 p= .082	**0.752** p= 000	0.406 p= 084	**0.804** p= 000
symptom (other)	0.138 p= 573	-0 131 p= .594	0.116 p= .636	0.083 p= .736	-0.429 p= 067	0.104 p= .672
MISC	0.508 p= 026	0.407 p= .083	0.336 p= 159	**0.780** p= .000	0 484 p= 036	**0.629** p= 004
MS medicine	0.002 p= .995	0 017 p= .944	-0.079 p= .747	-0.204 p= .403	0.054 p= .825	-0.031 p= 898
decision making	0.249 p= .303	0.460 p= 047	0.342 p= 152	0.131 p= .593	0 470 p= 042	0 461 p= 047
concentration	0 198 p= 416	0.404 p= .086	0.248 p= 306	0 202 p= .408	0.064 p= 794	0.470 p= 042
memory	-0.128 p= 603	0.089 p= .718	-0.040 p= .870	-0.424 p= 070	0.006 p= .980	0.076 p= 756
simple tasks	-0.076 p= 756	0.229 p= .345	0.207 p= .395	-0.060 p= .808	0.225 p= .354	0.244 p= 313
balance	0 352 p= .139	**0.619** p= 005	0.521 p= 022	0 550 p= 015	0.522 p= 022	**0.654** p= 002
carrying / moving	0.473 p= 041	0.478 p= 039	0.424 p= .070	0.607 p= 006	0.474 p= 040	**0.681** p= 001
hand coordination	0 381 p= 107	0.462 p= .046	0 226 p= .351	0.352 p= 140	0.461 p= 047	**0.645** p= 003
vision	-0.156 p= 524	0.351 p= 140	0.277 p= .250	-0.276 p= 254	0.296 p= 219	0.022 p= 928
performance (other)	-0.209 p= .390	0.369 p= .120	0.161 p= .510	0.187 p= .443	**0.627** p= 004	0.112 p= .647
more mistakes	0.345 p= .148	0.289 p= 229	0.121 p= .620	0.412 p= 079	0.048 p= .847	0.398 p= .091
longer time	0.611 p= 005	0.305 p= 204	0.134 p= 584	0.526 p= .021	0.115 p= .640	**0.710** p= 001
not finished	0.355 p= 136	0.256 p= .291	0.389 p= .099	0.536 p= 018	0.013 p= .959	0.537 p= 018
abandoned	0.402 p= 088	0.274 p= .257	0.191 p= .433	**0.759** p= 000	0.208 p= .394	**0.672** p= .002
not attempt	0.230 p= 344	-0.095 p= 699	0.010 p= 968	0.196 p= .422	0.150 p= .540	0.202 p= .406
completion (other)	0.506 p= 027	0.207 p= .395	0.382 p= 106	0.267 p= .268	0.368 p= 121	0.410 p= .081
cold / flu	-0.109 p= 656	-0.161 p= .511	-0.146 p= 551	-0.191 p= .433	-0.555 p= .014	0.004 p= 987
air quality	-0.248 p= 307	0 298 p= 215	0.191 p= .434	0.129 p= .598	0.130 p= .596	0.137 p= 577
noise	0.343 p= .151	0.126 p= .606	0.228 p= 347	0.192 p= .430	-0.014 p= .954	0.222 p= .361
vibration	0 523 p= 022	0.433 p= .064	0.477 p= 039	**0.827** p= 000	0.204 p= .402	0.568 p= 011
too bright	-0.151 p= .536	0.328 p= .170	0.306 p= .202	0.020 p= .937	0.179 p= .463	-0.074 p= .762
too dark	0.154 p= .530	0.001 p= 996	0.104 p= .672	0.264 p= .274	-0.041 p= 868	0.123 p= .617
too hot	0.412 p= .080	0.321 p= .180	0.193 p= .428	0.552 p= 014	0.180 p= .461	0.438 p= 061
too cold	-0.480 p= .038	-0.428 p= .068	-0.344 p= .150	-0 555 p= 014	-0.339 p= .155	-0.559 p= 013
other (other)	-0.299 p= .214	0.310 p= 196	0.266 p= .270	0.080 p= .745	0.400 p= .090	-0.034 p= .889

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2 5: Correlation, Ship D, high MS group

(page 4 of 9)

	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	0.609 p= 006	**0.685** p= 001	**0.816** p= 000	-0.308 p= .199	**0.831** p= .000	0.016 p= .949
ship pitch	0.603 p= 006	0.613 p= .005	**0.767** p= .000	-0.199 p= 415	**0.783** p= 000	0.249 p= 304
ship Laccn	0.584 p= 009	0.498 p= 030	**0.674** p= .002	-0.032 p= .896	**0.784** p= 000	-0.221 p= 363
ship roll	0.370 p= 119	0.256 p= .290	0.450 p= .053	0.035 p= .886	0.553 p= .014	0.231 p= .341
sleep quality	0.579 p= 009	0.470 p= 042	0.593 p= .007	-0.116 p= .636	0.524 p= .021	-0.493 p= .032
sleep time	0.525 p= 021	0.522 p= 022	0.568 p= .011	0.180 p= .462	0.461 p= .047	-0.439 p= .060
sleep motions	**0.712** p= 001	**0.642** p= 003	**0.745** p= .000	-0.170 p= .486	**0.757** p= .000	-0.231 p= .341
sleep MS	**0.649** p= 003	0.330 p= .168	0.527 p= 020	-0.237 p= .329	0.588 p= .008	0.007 p= .976
sleep (other)	-0.204 p= .403	-0.003 p= 989	-0.134 p= .586	0.350 p= .142	-0.295 p= .219	-0.293 p= 223
mental fatigue	0.475 p= 040	0 497 p= 031	**0.617** p= .005	0.138 p= .573	0.508 p= 026	0.002 p= .995
physical fatigue	0.520 p= 023	0.308 p= .199	0 480 p= 038	-0.131 p= .594	0.407 p= 083	0.017 p= 944
sleepy	0 478 p= 038	0.199 p= 413	0.409 p= .082	0.116 p= .636	0.336 p= .159	-0.079 p= .747
headache	0 574 p= 010	**0.742** p= 000	**0.752** p= 000	0.083 p= .736	**0.780** p= 000	-0.204 p= .403
apathy	0.474 p= 040	0.302 p= .209	0.406 p= 084	-0.429 p= 067	0.484 p= 036	0.054 p= 825
tension	0 431 p= .065	**0.704** p= 001	**0.804** p= .000	0.104 p= .672	**0.629** p= 004	-0.031 p= .898
vomit	1	0 459 p= 048	0.557 p= .013	-0.061 p= .804	**0.637** p= 003	-0.090 p= .714
nausea	0.459 p= .048	1	**0.923** p= 000	-0.105 p= .670	**0.776** p= .000	-0.066 p= .787
stomach awareness	0 557 p= 013	**0.923** p= .000	1	-0.153 p= 533	**0.813** p= 000	-0.034 p= 889
symptom (other)	-0.061 p= .804	-0 105 p= 670	-0.153 p= .533	1	-0.297 p= .217	-0.178 p= .465
MISC	**0.637** p= 003	**0.776** p= 000	**0.813** p= 000	-0.297 p= .217	1	0.017 p= .944
MS medicine	-0.090 p= 714	-0.066 p= .787	-0.034 p= .889	-0.178 p= .465	0.017 p= 944	1
decision making	0.247 p= .308	0.200 p= .412	0.354 p= .137	-0.271 p= .262	0.279 p= .247	0.086 p= .727
concentration	-0.195 p= .424	0.179 p= .464	0.271 p= .262	-0.098 p= .690	0.152 p= .533	0.108 p= .659
memory	-0.411 p= 080	-0.269 p= .265	-0.176 p= 471	-0.172 p= 480	-0.316 p= 188	0.229 p= .345
simple tasks	0.048 p= 846	-0 156 p= .523	0.016 p= .948	-0.243 p= .315	0.047 p= .849	-0.145 p= .555
balance	0 413 p= 079	0.575 p= 010	**0.718** p= .001	-0.462 p= 047	**0.704** p= 001	-0.033 p= .894
carrying / moving	0 490 p= 033	0 611 p= 005	**0.705** p= 001	-0.402 p= .088	**0.791** p= 000	-0.137 p= .576
hand coordination	0.197 p= 419	0.398 p= 092	0.512 p= 025	-0.500 p= 029	0.434 p= .063	0.067 p= 787
vision	-0.086 p= 728	-0.284 p= 239	-0.184 p= .450	-0.250 p= .302	-0.278 p= .249	0.165 p= .500
performance (other)	0.248 p= 306	0.004 p= .986	0.145 p= .553	**-0.618** p= .005	0.269 p= .265	0.093 p= .704
more mistakes	-0 080 p= 746	0.369 p= 120	0.355 p= .136	-0.215 p= .376	0.304 p= .205	-0.275 p= .255
longer time	0.060 p= 806	**0.637** p= 003	**0.668** p= 002	-0.161 p= .510	0.594 p= .007	0.032 p= .897
not finished	0.031 p= .899	0.332 p= 165	0.405 p= .086	0.284 p= .238	0.312 p= .193	-0.188 p= .442
abandoned	0.419 p= 074	**0.898** p= 000	**0.885** p= .000	-0.079 p= .749	**0.834** p= 000	0.102 p= .678
not attempt	-0.064 p= 794	0.464 p= 045	0.469 p= 043	-0.054 p= .825	0.425 p= .069	-0.010 p= .966
completion (other)	0.323 p= .177	0.361 p= 129	0.451 p= .053	0.155 p= 527	0.479 p= 038	0.071 p= .774
cold / flu	-0 525 p= 021	-0.232 p= .339	-0.280 p= .246	0.284 p= 238	-0.469 p= 043	-0.108 p= 660
air quality	0.025 p= 920	0.214 p= 378	0.288 p= .232	-0.232 p= .340	0.078 p= .751	-0.081 p= .743
noise	0.087 p= 724	0.171 p= .485	0.198 p= 416	-0.112 p= .648	0.334 p= 162	-0.098 p= .688
vibration	0 513 p= 025	**0.655** p= .002	**0.668** p= 002	-0.101 p= .682	**0.846** p= 000	-0.122 p= .618
too bright	0.101 p= .679	-0.098 p= 690	0.032 p= .895	-0.358 p= .132	0.014 p= 956	-0.516 p= 024
too dark	0.216 p= 375	0.151 p= .538	0.217 p= .373	0.136 p= .579	0.180 p= .461	-0.600 p= 007
too hot	0.133 p= 588	0.572 p= .011	0.530 p= .020	-0.196 p= .422	0.349 p= .143	-0.466 p= 044
too cold	-0 468 p= 044	**-0.628** p= 004	**-0.641** p= 003	0.184 p= .452	**-0.668** p= .002	0.067 p= .787
other (other)	0 118 p= 630	0.022 p= 927	0.168 p= 491	-0.327 p= .171	0.053 p= .829	0.220 p= .366

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.5 Correlation, Ship D, high MS group (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	0.427 p= .068	0.125 p= .609	-0.186 p= .445	0.159 p= 515
ship pitch	0.317 p= .186	0.037 p= .880	-0.212 p= .383	0.043 p= 862
ship Laccn	0.259 p= .284	-0.017 p= 945	-0.330 p= .167	0.165 p= .499
ship roll	0.105 p= .668	-0.038 p= 876	-0.206 p= .397	0.021 p= .933
sleep quality	0.209 p= .391	0.304 p= .205	-0.158 p= .518	0.225 p= .354
sleep time	0.032 p= 896	0.268 p= .267	-0.268 p= .268	0.044 p= .859
sleep motions	0.108 p= .659	0.118 p= .629	-0.387 p= .102	0.034 p= .890
sleep MS	0.297 p= .216	0.254 p= .293	-0.153 p= .531	0.268 p= .268
sleep (other)	-0.077 p= .755	0.038 p= .877	0.181 p= .458	0.098 p= .691
mental fatigue	0.249 p= .303	0.198 p= .416	-0.128 p= .603	-0.076 p= .756
physical fatigue	0.460 p= 047	0.404 p= .086	0.089 p= .718	0.229 p= .345
sleepy	0.342 p= .152	0.248 p= .306	-0.040 p= 870	0.207 p= .395
headache	0.131 p= .593	0.202 p= .408	-0.424 p= .070	-0.060 p= .808
apathy	0 470 p= .042	0.064 p= 794	0.006 p= .980	0.225 p= .354
tension	0.461 p= .047	0.470 p= .042	0.076 p= .756	0.244 p= .313
vomit	0.247 p= 306	-0.195 p= .424	-0.411 p= 080	0.048 p= .846
nausea	0.200 p= .412	0.179 p= .464	-0.269 p= .265	-0.156 p= 523
stomach awareness	0.354 p= 137	0.271 p= .262	-0.176 p= 471	0.016 p= 948
symptom (other)	-0.271 p= 262	-0.098 p= .690	-0.172 p= 480	-0.243 p= .315
MISC	0.279 p= .247	0.152 p= .533	-0.316 p= .188	0.047 p= .849
MS medicine	0.086 p= .727	0.108 p= .659	0.229 p= .345	-0.145 p= .555
decision making	1	0.469 p= .043	**0.684 p= 001**	**0.720 p= 001**
concentration	0.469 p= .043	1	**0.624 p= 004**	0.449 p= 054
memory	**0.684 p= 001**	**0.624 p= 004**	1	**0.700 p= .001**
simple tasks	**0.720 p= 001**	0.449 p= 054	**0.700 p= .001**	1
balance	0.541 p= 017	0.585 p= 009	0.204 p= .403	0.513 p= 025
carrying / moving	0.530 p= 019	0.376 p= 113	0.094 p= .703	0.521 p= 022
hand coordination	**0.729 p= .000**	0.573 p= 010	0.493 p= .032	**0.619 p= 005**
vision	0.565 p= .012	0.187 p= .444	**0.664 p= .002**	0.608 p= 006
performance (other)	0.471 p= 042	0.160 p= .513	0.198 p= .417	0 472 p= .041
more mistakes	0.343 p= 151	0.546 p= .016	0.239 p= .324	0.166 p= .497
longer time	0.295 p= .220	**0.698 p= 001**	0.161 p= .509	0.095 p= .699
not finished	0.116 p= .636	0.255 p= 293	-0.002 p= .994	0.195 p= 423
abandoned	0.175 p= .473	0.293 p= 224	-0.252 p= .298	-0.122 p= 619
not attempt	-0.109 p= .657	0 049 p= .843	-0.195 p= .424	-0.244 p= .314
completion (other)	0.376 p= .113	0.008 p= 973	-0.038 p= .878	0.007 p= .977
cold / flu	-0.065 p= .791	0.470 p= 042	0.428 p= .068	0.194 p= .427
air quality	0.162 p= .507	0.272 p= .261	0.120 p= .624	0.153 p= 531
noise	0.122 p= .620	0.373 p= .116	0.100 p= .682	0.256 p= .290
vibration	0.041 p= .867	0.223 p= .360	-0.392 p= 097	-0.004 p= .987
too bright	0.163 p= .504	0.393 p= .096	0.163 p= .506	0.411 p= .080
too dark	-0.041 p= .867	-0.113 p= .646	-0.313 p= .192	-0.069 p= 780
too hot	0.037 p= 879	0.000 p= .998	-0.247 p= .307	-0.114 p= 643
too cold	-0.267 p= .269	-0.022 p= .928	0.166 p= .498	-0.081 p= .742
other (other)	0.138 p= 574	-0.033 p= .892	-0.051 p= .836	0.010 p= 969

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2 5 Correlation, Ship D, high MS group (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	**0.666** p= 002	**0.635** p= 003	0.425 p= 070	-0.154 p= 530	0.534 p= .018
ship pitch	0.558 p= 013	0.541 p= .017	0.278 p= .249	-0.241 p= .320	0.332 p= .165
ship Laccn	0.579 p= 009	**0.691** p= .001	0.263 p= 276	-0.241 p= .319	0 177 p= .468
ship roll	0.379 p= .109	0.489 p= .033	0.109 p= .657	-0.212 p= .384	-0.148 p= .545
sleep quality	**0.713** p= 001	**0.653** p= .002	0.356 p= .134	0.016 p= 949	0.104 p= 673
sleep time	0 497 p= 030	0.449 p= .054	0.108 p= .660	-0.157 p= .520	-0.056 p= .820
sleep motions	**0.670** p= 002	**0.727** p= .000	0.357 p= .134	-0.220 p= .365	0.039 p= 873
sleep MS	**0.654** p= .002	**0.634** p= .004	0.435 p= .062	-0.019 p= .939	0.352 p= 140
sleep (other)	-0.108 p= 661	-0.120 p= .625	-0.237 p= .330	0.164 p= .503	-0.403 p= .087
mental fatigue	0.352 p= 139	0.473 p= .041	0.381 p= .107	-0.156 p= .524	-0.209 p= .390
physical fatigue	**0.619** p= 005	0.478 p= 039	0.462 p= .046	0.351 p= 140	0.369 p= 120
sleepy	0 521 p= .022	0.424 p= .070	0.226 p= 351	0.277 p= .250	0.161 p= .510
headache	0 550 p= 015	0.607 p= 006	0.352 p= 140	-0.276 p= 254	0.187 p= 443
apathy	0 522 p= 022	0.474 p= 040	0.461 p= 047	0.296 p= .219	**0.627** p= 004
tension	**0.654** p= 002	**0.681** p= .001	**0.645** p= 003	0.022 p= .928	0.112 p= .647
vomit	0.413 p= 079	0.490 p= 033	0.197 p= 419	-0.086 p= .728	0.248 p= 306
nausea	0 575 p= 010	0.611 p= 005	0.398 p= .092	-0.284 p= .239	0.004 p= .986
stomach awareness	**0.718** p= 001	**0.705** p= .001	0.512 p= 025	-0.184 p= .450	0.145 p= 553
symptom (other)	-0 462 p= 047	-0.402 p= .088	-0.500 p= 029	-0.250 p= 302	**-0.618** p= 005
MISC	**0.704** p= 001	**0.791** p= .000	0.434 p= 063	-0.278 p= .249	0.269 p= 265
MS medicine	-0.033 p= .894	-0.137 p= .576	0.067 p= .787	0.165 p= .500	0.093 p= .704
decision making	0.541 p= 017	0.530 p= 019	**0.729** p= 000	0.565 p= 012	0.471 p= .042
concentration	0 585 p= 009	0.376 p= 113	0.573 p= 010	0.187 p= .444	0.160 p= .513
memory	0 204 p= 403	0.094 p= 703	0.493 p= 032	**0.664** p= 002	0.198 p= 417
simple tasks	0.513 p= 025	0.521 p= 022	**0.619** p= 005	0.608 p= .006	0.472 p= .041
balance	1	**0.904** p= 000	**0.731** p= 000	0.182 p= .455	0.423 p= .071
carrying / moving	**0.904** p= 000	1	**0.749** p= 000	0.086 p= .727	0.314 p= .190
hand coordination	**0.731** p= 000	**0.749** p= 000	1	0.382 p= 106	0.532 p= 019
vision	0.182 p= 455	0.086 p= 727	0.382 p= 106	1	0.391 p= .098
performance (other)	0 423 p= 071	0.314 p= .190	0.532 p= 019	0.391 p= .098	1
more mistakes	0.354 p= 137	0.357 p= 134	0.486 p= .035	0.017 p= 946	0.188 p= 440
longer time	**0.621** p= 005	0.615 p= 005	0.615 p= 005	-0.277 p= 251	-0.026 p= .915
not finished	0 320 p= 182	0.384 p= 105	0.198 p= .417	-0.120 p= 625	-0 022 p= .929
abandoned	0 599 p= 007	0.575 p= 010	0.343 p= 150	-0.373 p= 115	0.118 p= .631
not attempt	0 214 p= 378	0.225 p= .355	-0.038 p= .877	-0.416 p= .076	-0.217 p= .372
completion (other)	0.268 p= .267	0.376 p= .112	0.184 p= .451	-0.068 p= 782	-0.140 p= 566
cold / flu	-0.076 p= 758	-0.125 p= .609	0.145 p= 555	0.138 p= .574	-0.294 p= 221
air quality	0.423 p= 071	0.142 p= .561	0.168 p= .492	0.252 p= .297	0.314 p= .191
noise	0 464 p= 046	0.566 p= 012	0.301 p= .210	-0.151 p= .536	-0.252 p= .297
vibration	**0.659** p= 002	**0.738** p= 000	0.269 p= .266	-0.323 p= 177	0.013 p= .959
too bright	0.465 p= 045	0.270 p= 264	0.190 p= .437	0.162 p= .507	0.321 p= .181
too dark	0.064 p= 796	0.118 p= .630	0.015 p= .952	-0.286 p= .235	0.035 p= 888
too hot	0.289 p= 231	0.360 p= 130	0.270 p= .264	-0.122 p= 619	0.057 p= 816
too cold	-0 583 p= .009	**-0.687** p= 001	-0.315 p= .190	0.151 p= .537	-0.011 p= 964
other (other)	0 229 p= .347	-0.041 p= .869	0.057 p= .815	0.218 p= .371	0 603 p= 006

Legend bold = high significance (p < 0 005), normal = significant (p < 0.05), shade = not significant (p > 0 05)

Table D.2.5: Correlation, Ship D, high MS group (page 7 of 9)

	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	0 223 p= 358	0 401 p= .088	0.351 p= 140	**0.787** p= .000	0.369 p= .120	0.369 p= .120
ship pitch	0 037 p= 880	0 363 p= .126	0.337 p= .159	**0.772** p= .000	0.426 p= .069	0 475 p= 040
ship Laccn	0 117 p= 634	0.350 p= .142	0.537 p= 018	0.584 p= 009	0.420 p= .073	0.574 p= .010
ship roll	-0.116 p= .637	0.316 p= 188	0.408 p= .083	0.370 p= .119	0.383 p= .105	0 595 p= 007
sleep quality	0 300 p= 212	0.393 p= 098	0.308 p= .200	0.385 p= .103	0.164 p= .502	0.175 p= .473
sleep time	0 411 p= 081	0.390 p= 099	0.447 p= .055	0.456 p= 050	0.119 p= 628	0.057 p= .817
sleep motions	0.228 p= .348	0.468 p= 043	0.365 p= .124	**0.617** p= .005	0.319 p= .183	0.245 p= .312
sleep MS	0.151 p= .537	0.291 p= 227	0.354 p= .138	0.432 p= .065	0.083 p= .736	0.099 p= .687
sleep (other)	-0.022 p= .928	-0.185 p= 448	0 311 p= .196	-0.085 p= .730	-0.027 p= .912	-0.397 p= 092
mental fatigue	0.345 p= 148	0.611 p= 005	0.355 p= .136	0.402 p= .088	0.230 p= .344	0.506 p= 027
physical fatigue	0.289 p= .229	0.305 p= 204	0.256 p= .291	0.274 p= 257	-0.095 p= .699	0.207 p= .395
sleepy	0.121 p= 620	0.134 p= .584	0.389 p= .099	0.191 p= .433	0.010 p= .968	0.382 p= 106
headache	0 412 p= .079	0.526 p= 021	0.536 p= 018	**0.759** p= 000	0.196 p= 422	0.267 p= 268
apathy	0.048 p= 847	0.115 p= 640	0 013 p= .959	0.208 p= 394	0.150 p= 540	0.368 p= 121
tension	0.398 p= 091	**0.710** p= 001	0 537 p= 018	**0.672** p= 002	0.202 p= 406	0.410 p= 081
vomit	-0 080 p= 746	0.060 p= 806	0.031 p= .899	0.419 p= .074	-0.064 p= .794	0.323 p= .177
nausea	0.369 p= 120	**0.637** p= 003	0.332 p= .165	**0.898** p= 000	0.464 p= 045	0.361 p= .129
stomach awareness	0.355 p= 136	**0.668** p= .002	0.405 p= .086	**0.885** p= .000	0.469 p= 043	0.451 p= .053
symptom (other)	-0 215 p= 376	-0.161 p= .510	0.284 p= .238	-0.079 p= .749	-0.054 p= .825	0 155 p= .527
MISC	0.304 p= 205	0 594 p= 007	0.312 p= .193	**0.834** p= 000	0.425 p= 069	0.479 p= 038
MS medicine	-0.275 p= 255	0.032 p= 897	-0.188 p= 442	0.102 p= .678	-0.010 p= 966	0.071 p= 774
decision making	0.343 p= 151	0.295 p= 220	0.116 p= 636	0.175 p= .473	-0.109 p= .657	0 376 p= .113
concentration	0 546 p= 016	**0.698** p= 001	0.255 p= 293	0.293 p= .224	0.049 p= .843	0.008 p= .973
memory	0 239 p= 324	0.161 p= 509	-0.002 p= 994	-0.252 p= .298	-0.195 p= .424	-0.038 p= .878
simple tasks	0 166 p= 497	0.095 p= .699	0.195 p= 423	-0.122 p= .619	-0 244 p= .314	0.007 p= .977
balance	0 354 p= .137	**0.621** p= 005	0.320 p= .182	0.599 p= 007	0.214 p= .378	0.268 p= .267
carrying / moving	0.357 p= .134	0.615 p= 005	0.384 p= .105	0.575 p= .010	0.225 p= .355	0.376 p= .112
hand coordination	0.486 p= .035	0.615 p= 005	0.198 p= .417	0.343 p= .150	-0.038 p= 877	0.184 p= .451
vision	0.017 p= .946	-0.277 p= .251	-0.120 p= .625	-0.373 p= .115	-0.416 p= .076	-0.068 p= .782
performance (other)	0.188 p= .440	-0.026 p= 915	-0.022 p= 929	0.118 p= 631	-0.217 p= .372	-0.140 p= .566
more mistakes	1	**0.650** p= 003	0.355 p= 136	0.348 p= 145	0.081 p= .740	0.000 p= .000
longer time	**0.650** p= 003	1	0.334 p= .163	**0.660** p= 002	0.384 p= 105	0.331 p= .166
not finished	0.355 p= 136	0.334 p= 163	1	0.438 p= .061	0.417 p= 075	0.036 p= .884
abandoned	0.348 p= 145	**0.660** p= 002	0 438 p= 061	1	0.489 p= 034	0.328 p= .171
not attempt	0.081 p= 740	0 384 p= 105	0 417 p= 075	0.489 p= 034	1	0.298 p= .215
completion (other)	0.000 p= .000	0 331 p= .166	0.036 p= .884	0.32[illegible] p= .171	0 298 p= 215	1
cold / flu	0.197 p= 419	0 152 p= .535	0.241 p= 320	-0.201 p= .410	-0.193 p= 428	-0.353 p= .138
air quality	-0.033 p= 893	-0.016 p= 948	0.103 p= .676	0.291 p= .227	0.090 p= .713	-0.230 p= .344
noise	0.120 p= 624	0.441 p= .059	0.334 p= .162	0.168 p= .493	0.367 p= .122	0.116 p= .636
vibration	0.355 p= .136	0.560 p= .013	0.499 p= .030	**0.720** p= .001	0.325 p= .174	0.259 p= .284
too bright	0.273 p= 257	0.068 p= .782	-0.004 p= .988	-0.101 p= 681	-0.042 p= .865	-0.292 p= .224
too dark	0.291 p= .227	0.138 p= 573	0.074 p= .762	0.166 p= 498	-0.036 p= .885	0.352 p= .139
too hot	0.584 p= 009	0.354 p= 137	0 462 p= .047	0.381 p= .108	0.289 p= .231	-0.110 p= 653
too cold	-0.116 p= 635	-0.370 p= .119	-0.482 p= 037	-0 577 p= 010	-0.343 p= 151	-0.286 p= 235
other (other)	-0.238 p= 326	-0.260 p= 282	-0.061 p= .804	0.152 p= .533	-0.059 p= .810	-0.116 p= .637

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2 5: Correlation, Ship D, high MS group

	cold / flu	air quality	noise	vibration
ship Vaccn	-0.563 p= 012	0.314 p= .190	-0.005 p= 983	0.565 p= 012
ship pitch	-0.554 p= 014	0.171 p= .485	0.030 p= .903	0.530 p= 020
ship Laccn	-0.419 p= .074	0.104 p= .673	0.312 p= .194	**0.716 p= 001**
ship roll	-0.324 p= .176	-0.158 p= .519	0.387 p= .102	0.566 p= .012
sleep quality	-0.027 p= .914	0.393 p= .098	0.436 p= .062	**0.635 p= 003**
sleep time	-0.109 p= .657	0.104 p= .672	0.183 p= .454	**0.649 p= 003**
sleep motions	-0.155 p= .526	0.224 p= .357	0.544 p= .016	**0.833 p= .000**
sleep MS	-0.089 p= .718	0.227 p= .350	0.523 p= .022	**0.673 p= .002**
sleep (other)	0.412 p= .079	0.342 p= .152	0.100 p= .685	-0.043 p= .860
mental fatigue	-0.109 p= .656	-0.248 p= .307	0.343 p= .151	0.523 p= .022
physical fatigue	-0.161 p= .511	0.298 p= .215	0.126 p= .606	0.433 p= .064
sleepy	-0.146 p= .551	0.191 p= .434	0.228 p= .347	0.477 p= 039
headache	-0.191 p= 433	0.129 p= .598	0.192 p= .430	**0.827 p= 000**
apathy	-0.555 p= 014	0.130 p= .596	-0.014 p= .954	0.204 p= 402
tension	0.004 p= .987	0.137 p= .577	0.222 p= .361	0.568 p= .011
vomit	-0.525 p= 021	0.025 p= .920	0.087 p= 724	0 513 p= 025
nausea	-0.232 p= 339	0.214 p= .378	0.171 p= .485	**0.655 p= 002**
stomach awareness	-0.280 p= 246	0.288 p= 232	0.198 p= .416	**0.668 p= 002**
symptom (other)	0.284 p= .238	-0.232 p= .340	-0.112 p= 648	-0.101 p= .682
MISC	-0.469 p= .043	0.078 p= .751	0.334 p= 162	**0.846 p= 000**
MS medicine	-0.108 p= .660	-0.081 p= 743	-0.098 p= .688	-0.122 p= .618
decision making	-0.065 p= .791	0.162 p= 507	0.122 p= .620	0.041 p= .867
concentration	0.470 p= 042	0.272 p= .261	0.373 p= .116	0.223 p= 360
memory	0.428 p= 068	0.120 p= 624	0.100 p= 682	-0.392 p= .097
simple tasks	0.194 p= .427	0.153 p= .531	0.256 p= .290	-0.004 p= 987
balance	-0.076 p= .758	0.423 p= .071	0.464 p= 046	**0.659 p= .002**
carrying / moving	-0.125 p= 609	0.142 p= .561	0.566 p= 012	**0.738 p= .000**
hand coordination	0.145 p= .555	0.168 p= .492	0.301 p= 210	0.269 p= .266
vision	0.138 p= .574	0.252 p= 297	-0.151 p= .536	-0.323 p= .177
performance (other)	-0.294 p= .221	0.314 p= 191	-0.252 p= 297	0.013 p= 959
more mistakes	0.197 p= .419	-0.033 p= .893	0.120 p= .624	0.355 p= 136
longer time	0.152 p= 535	-0.016 p= .948	0.441 p= .059	0.560 p= 013
not finished	0.241 p= 320	0.103 p= .676	0.334 p= 162	0.499 p= 030
abandoned	-0.201 p= .410	0.291 p= .227	0.168 p= .493	**0.720 p= 001**
not attempt	-0.193 p= 428	0.090 p= .713	0.367 p= .122	0.325 p= 174
completion (other)	-0.353 p= .138	-0.230 p= .344	0.116 p= 636	0.259 p= .284
cold / flu	1	0.161 p= .511	0.317 p= .186	-0.168 p= .492
air quality	0.161 p= .511	1	-0.013 p= .956	0.080 p= 744
noise	0.317 p= .186	-0.013 p= .956	1	0.543 p= .016
vibration	-0.168 p= .492	0.080 p= 744	0.543 p= 016	1
too bright	0.135 p= 581	0.459 p= 048	0.311 p= .195	0.150 p= .540
too dark	0 014 p= .954	0.044 p= .859	-0.160 p= .513	0.144 p= .557
too hot	-0.100 p= .685	0.188 p= 441	0.062 p= .800	0.430 p= 066
too cold	0.256 p= .290	-0.231 p= .342	-0.413 p= 079	**-0.667 p= 002**
other (other)	-0.298 p= .216	**0.702 p= .001**	-0.391 p= .098	-0.088 p= .720

Legend. **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2 5: Correlation, Ship D, high MS group (page 9 of 9)

	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	0.093 p= .704	0.212 p= 383	0.362 p= .128	-0 601 p= 007	0.454 p= 051
ship pitch	-0.104 p= 670	0.156 p= .524	0.143 p= .559	-0 584 p= 009	0.364 p= 126
ship Laccn	0.077 p= 754	0.398 p= 091	0.344 p= .150	**-0.690** p= 001	0.151 p= .537
ship roll	-0.221 p= .362	0.068 p= .788	0.058 p= .820	-0.595 p= .007	-0.014 p= .953
sleep quality	**0.629** p= .004	0.360 p= .130	0.458 p= 049	-0.520 p= .023	0.042 p= 864
sleep time	0.399 p= 090	0.240 p= .323	0.517 p= .023	-0.414 p= .078	-0.121 p= 622
sleep motions	0.310 p= .196	0.262 p= .279	0.457 p= 049	**-0.627** p= .004	-0.018 p= .942
sleep MS	0.401 p= .089	0.060 p= .808	0.169 p= .490	-0.396 p= .094	0.225 p= .355
sleep (other)	0.086 p= .726	-0.210 p= .387	0.233 p= .336	-0.257 p= .289	-0.165 p= .500
mental fatigue	-0.151 p= .536	0.154 p= .530	0.412 p= .080	-0.480 p= .036	-0.299 p= .214
physical fatigue	0.328 p= .170	0.001 p= 996	0.321 p= .180	-0.428 p= .068	0.310 p= 196
sleepy	0.306 p= .202	0.104 p= .672	0.193 p= .428	-0.344 p= 150	0.266 p= 270
headache	0.020 p= 937	0.264 p= 274	0 552 p= 014	-0.555 p= .014	0.080 p= 745
apathy	0 179 p= .463	-0.041 p= .868	0.180 p= .461	-0.339 p= .155	0.400 p= 090
tension	-0.074 p= .762	0.123 p= 617	0.438 p= .061	-0.559 p= 013	-0.034 p= .889
vomit	0 101 p= .679	0.216 p= .375	0.133 p= .588	-0.468 p= 044	0.118 p= .630
nausea	-0.098 p= 690	0.151 p= 536	0.572 p= 011	**-0.628** p= 004	0.022 p= 927
stomach awareness	0.032 p= 895	0.217 p= 373	0.530 p= 020	**-0.641** p= 003	0.168 p= 491
symptom (other)	-0.358 p= 132	0.136 p= .579	-0.196 p= .422	0 184 p= 452	-0.327 p= .171
MISC	0.014 p= 956	0.180 p= .461	0.349 p= 143	**-0.668** p= .002	0.053 p= 829
MS medicine	-0 516 p= 024	-0.600 p= .007	-0 466 p= 044	0.067 p= .787	0.220 p= .366
decision making	0.163 p= .504	-0.041 p= .867	0.037 p= .879	-0.267 p= .269	0.138 p= .574
concentration	0.393 p= .096	-0.113 p= .646	0.000 p= .998	-0.022 p= .928	-0.033 p= .892
memory	0.163 p= .506	-0.313 p= .192	-0.247 p= 307	0 166 p= .498	-0.051 p= 836
simple tasks	0.411 p= .080	-0.069 p= .780	-0.114 p= .643	-0.081 p= .742	0 010 p= .969
balance	0 465 p= 045	0.064 p= 796	0.289 p= .231	-0.583 p= 009	0.229 p= 347
carrying / moving	0.270 p= 264	0.118 p= 630	0 360 p= .130	**-0.687** p= 001	-0.041 p= .869
hand coordination	0 190 p= 437	0.015 p= 952	0.270 p= .264	-0.315 p= 190	0.057 p= 815
vision	0.162 p= 507	-0.286 p= .235	-0.122 p= .619	0.151 p= .537	0.218 p= 371
performance (other)	0.321 p= .181	0.035 p= .888	0.057 p= 816	-0.011 p= .964	0 603 p= 006
more mistakes	0.273 p= 257	0.291 p= 227	0.584 p= 009	-0.116 p= 635	-0.238 p= 326
longer time	0.068 p= 782	0.138 p= .573	0.354 p= .137	-0.370 p= .119	-0 260 p= 282
not finished	-0.004 p= .988	0.074 p= .762	0 462 p= 047	-0.482 p= 037	-0.061 p= 804
abandoned	-0.101 p= 681	0.166 p= 498	0.381 p= .108	-0.577 p= 010	0.152 p= 533
not attempt	-0.042 p= 865	-0.036 p= .885	0.289 p= .231	-0.343 p= .151	-0.059 p= .810
completion (other)	-0.292 p= 224	0.352 p= 139	-0.110 p= .653	-0.286 p= .235	-0.116 p= .637
cold / flu	0.135 p= .581	0.014 p= .954	-0.100 p= .685	0.256 p= 290	-0.298 p= 216
air quality	0.459 p= 048	0.044 p= 859	0.188 p= .441	-0.231 p= .342	**0.702** p= 001
noise	0.311 p= .195	-0.160 p= .513	0.062 p= .800	-0.413 p= .079	-0.391 p= .098
vibration	0.150 p= .540	0.144 p= .557	0.430 p= .066	**-0.667** p= 002	-0.088 p= 720
too bright	1	0.208 p= .394	0.166 p= 497	0.008 p= .973	0.199 p= 414
too dark	0 208 p= .394	1	0.197 p= .419	-0.006 p= .981	-0.020 p= 936
too hot	0.166 p= 497	0 197 p= 419	1	-0.523 p= 021	0.035 p= 888
too cold	0.008 p= 973	-0.006 p= .981	-0.523 p= .021	1	-0.097 p= 693
other (other)	0.199 p= .414	-0.020 p= .936	0.035 p= 888	-0.097 p= .693	1

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2 6: Correlation, Ship D, cognitive tasks (page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914 p= .000**	**0.766 p= .000**	0.434 p= .063
ship pitch	**0.914 p= .000**	1	**0.753 p= .000**	**0.638 p= .003**
ship Laccn	**0.766 p= .000**	**0.753 p= .000**	1	**0.775 p= .000**
ship roll	0.434 p= .063	**0.638 p= .003**	**0.775 p= .000**	1
sleep quality	0.246 p= .309	0.232 p= .340	0.437 p= .061	0.346 p= .147
sleep time	0.076 p= .757	0.123 p= .615	0.217 p= .371	0.292 p= .225
sleep motions	0.543 p= .016	0.518 p= .023	**0.649 p= .003**	0.485 p= .035
sleep MS	0.467 p= .044	0.516 p= .024	0.609 p= .006	0.600 p= .007
sleep (other)	-0.591 p= .008	-0.571 p= .011	-0.570 p= .011	-0.329 p= .169
mental fatigue	-0.293 p= .224	-0.098 p= .691	-0.040 p= .869	0.371 p= .118
physical fatigue	-0.130 p= .597	-0.067 p= .787	0.134 p= .584	0.342 p= .151
sleepy	-0.362 p= .128	-0.198 p= .417	-0.069 p= .777	0.268 p= .267
headache	0.342 p= .152	0.225 p= .355	0.121 p= .621	-0.030 p= .904
apathy	0.243 p= .316	0.227 p= .349	0.324 p= .176	0.405 p= .085
tension	-0.153 p= .532	-0.201 p= .410	-0.420 p= .074	-0.392 p= .097
vomit	0.416 p= .076	0.390 p= .099	0.474 p= .040	0.274 p= .257
nausea	0.489 p= .034	0.380 p= .109	0.315 p= .190	0.048 p= .844
stomach awareness	0.518 p= .023	0.508 p= .026	0.320 p= .182	0.184 p= .450
symptom (other)	-0.543 p= .016	-0.348 p= .144	-0.562 p= .012	-0.202 p= .406
MISC	**0.706 p= .001**	**0.690 p= .001**	**0.688 p= .001**	0.460 p= .048
MS medicine	-0.415 p= .077	-0.162 p= .507	-0.493 p= .032	0.016 p= .949
decision making	-0.251 p= .301	-0.125 p= .611	-0.114 p= .642	0.224 p= .357
concentration	-0.317 p= .186	-0.268 p= .268	-0.240 p= .323	0.041 p= .867
memory	-0.503 p= .028	-0.304 p= .206	-0.386 p= .103	0.076 p= .757
simple tasks	-0.461 p= .047	-0.267 p= .268	-0.372 p= .116	0.088 p= .719
balance	0.565 p= .012	**0.624 p= .004**	**0.676 p= .002**	**0.652 p= .002**
carrying / moving	**0.677 p= .001**	**0.740 p= .000**	**0.728 p= .000**	0.708 p= .001
hand coordination	-0.109 p= .656	0.134 p= .583	-0.048 p= .846	0.409 p= .082
vision	-0.363 p= .127	-0.263 p= .277	-0.268 p= .268	-0.060 p= .806
performance (other)	-0.350 p= .142	-0.215 p= .376	**-0.637 p= .003**	-0.241 p= .319
more mistakes	-0.224 p= .357	-0.181 p= .459	-0.083 p= .737	0.134 p= .583
longer time	0.050 p= .840	0.191 p= .434	0.015 p= .951	0.292 p= .225
not finished	-0.261 p= .280	-0.461 p= .047	-0.189 p= .438	-0.442 p= .058
abandoned	0.293 p= .223	0.113 p= .646	0.123 p= .615	-0.227 p= .350
not attempt	0.146 p= .552	0.039 p= .874	0.013 p= .958	-0.110 p= .654
completion (other)	0.084 p= .732	0.003 p= .991	0.045 p= .854	-0.106 p= .667
cold / flu	**-0.751 p= .000**	-0.566 p= .012	**-0.699 p= .001**	-0.272 p= .259
air quality	-0.242 p= .317	-0.268 p= .267	-0.086 p= .727	-0.114 p= .641
noise	-0.431 p= .066	-0.238 p= .327	-0.171 p= .485	0.268 p= .267
vibration	0.491 p= .033	0.582 p= .009	**0.624 p= .004**	**0.708 p= .001**
too bright	-0.149 p= .543	-0.128 p= .602	0.142 p= .562	0.093 p= .706
too dark	-0.015 p= .950	-0.131 p= .592	0.233 p= .338	-0.030 p= .901
too hot	-0.231 p= .341	-0.149 p= .542	-0.250 p= .302	0.100 p= .684
too cold	-0.490 p= .033	-0.524 p= .021	**-0.632 p= .004**	-0.604 p= .006
other (other)	-0.046 p= .850	0.013 p= .958	-0.367 p= .123	-0.104 p= .673

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 2.6: Correlation, Ship D, cognitive tasks (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0.246 p= .309	0.076 p= 757	0 543 p= 016	0.467 p= 044	-0.591 p= 008
ship pitch	0.232 p= .340	0.123 p= 615	0.518 p= .023	0.516 p= .024	-0.571 p= 011
ship Laccn	0.437 p= .061	0.217 p= 371	**0.649** p= 003	0.609 p= 006	-0.570 p= 011
ship roll	0.346 p= .147	0.292 p= .225	0.485 p= .035	0.600 p= .007	-0.329 p= .169
sleep quality	1	**0.847** p= 000	**0.778** p= .000	**0.747** p= 000	0.004 p= .989
sleep time	**0.847** p= 000	1	0.577 p= .010	0 603 p= 006	0.207 p= 395
sleep motions	**0.778** p= .000	0.577 p= .010	1	**0.862** p= 000	-0.536 p= 018
sleep MS	**0.747** p= 000	0.603 p= .006	**0.862** p= .000	1	-0.430 p= 066
sleep (other)	0.004 p= .989	0.207 p= .395	-0.536 p= .018	-0.430 p= .066	1
mental fatigue	0.496 p= 031	0 584 p= 009	0.224 p= 357	0.359 p= .131	0.441 p= .059
physical fatigue	**0.723** p= 000	**0.793** p= 000	0.361 p= 129	0.500 p= 029	0.469 p= 043
sleepy	0 609 p= 006	**0.683** p= .001	0.228 p= .347	0.410 p= .082	0 525 p= 021
headache	0.416 p= 076	0.320 p= .182	0.482 p= .036	0.458 p= .049	-0.011 p= .964
apathy	0 278 p= 248	0.198 p= 416	0.408 p= .083	0.497 p= .030	-0.282 p= .242
tension	-0.180 p= 460	-0.168 p= .493	-0.275 p= .254	-0.305 p= .205	0.419 p= .074
vomit	0 515 p= .024	0.342 p= 151	**0.721** p= 000	0.519 p= .023	**-0.619** p= 005
nausea	0.224 p= .356	0.118 p= .630	0.476 p= 039	0.253 p= .296	-0.274 p= .257
stomach awareness	0.393 p= .096	0.255 p= 293	0 528 p= .020	0.397 p= .093	-0.151 p= .537
symptom (other)	-0.405 p= 085	-0.118 p= 630	-0.523 p= .022	-0 476 p= 039	0.488 p= 034
MISC	0.485 p= 036	0.277 p= 251	**0.751** p= .000	0 569 p= 011	-0.532 p= 019
MS medicine	0.028 p= 909	0.256 p= .291	-0.151 p= .537	-0.028 p= 909	0.468 p= 043
decision making	0.065 p= 791	0.314 p= .190	-0.185 p= .449	0.013 p= 958	0.457 p= .049
concentration	0.237 p= .328	0 463 p= 046	-0.075 p= .761	0.122 p= .619	**0.646** p= 003
memory	0.142 p= 561	0.390 p= .099	-0.265 p= 273	-0.026 p= 916	**0.730** p= 000
simple tasks	0 024 p= .923	0.321 p= 180	-0.316 p= .188	-0.056 p= .820	**0.700** p= 001
balance	**0.650** p= 003	0.602 p= 006	**0.790** p= 000	**0.807** p= .000	-0.326 p= .173
carrying / moving	0.504 p= 028	0.410 p= 081	**0.766** p= 000	**0.817** p= 000	-0 509 p= .026
hand coordination	0 126 p= 608	0.233 p= 338	0.128 p= .603	0.212 p= .383	0.180 p= 461
vision	0 112 p= .647	0.136 p= 578	-0.219 p= 368	0.004 p= .986	0 559 p= 013
performance (other)	-0 517 p= 023	-0.233 p= 338	**-0.624** p= 004	-0.429 p= .067	0.431 p= 065
more mistakes	-0.020 p= 936	0.134 p= .583	-0.148 p= .546	-0.104 p= 673	0.355 p= 136
longer time	0 471 p= 042	0.491 p= 033	0.323 p= .178	0.426 p= .069	0.296 p= .218
not finished	0.059 p= 811	-0.001 p= .996	-0.086 p= .727	0.052 p= .831	0.204 p= .403
abandoned	0.232 p= 340	0.129 p= .598	0.290 p= .229	0.159 p= .516	-0.073 p= .767
not attempt	0.000 p= .999	-0.181 p= .457	0.151 p= .536	-0.011 p= .963	-0.223 p= .358
completion (other)	0.043 p= 862	-0.091 p= .712	0.015 p= .952	-0.224 p= 357	-0.020 p= .936
cold / flu	-0.124 p= 614	0.123 p= 617	-0.504 p= 028	-0.285 p= .238	**0.703** p= .001
air quality	0 537 p= .018	0.563 p= 012	0.160 p= .514	0.074 p= .762	0.437 p= .061
noise	0.316 p= .188	0.366 p= 123	0.080 p= .744	0.248 p= .307	0.406 p= .084
vibration	0 401 p= .088	0.384 p= .104	**0.759** p= 000	**0.679** p= 001	-0.539 p= .017
too bright	0.169 p= .490	0.247 p= .307	0.303 p= .208	0.308 p= 199	-0.156 p= .523
too dark	0.480 p= 037	0.270 p= .264	0.295 p= .221	0.235 p= .333	0.030 p= .902
too hot	-0 233 p= .338	-0.013 p= .959	0.011 p= 963	0.036 p= .885	0.043 p= .862
too cold	-0.010 p= .969	-0.035 p= .888	-0.423 p= .071	-0.378 p= .111	**0.688** p= 001
other (other)	-0.491 p= .033	-0.387 p= 101	-0.377 p= .112	-0.390 p= .098	0.199 p= 414

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2.6· Correlation, Ship D, cognitive tasks

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	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	-0.293 p= 224	-0.130 p= .597	-0.362 p= .128	0.342 p= .152	0.243 p= .316	-0.153 p= .532
ship pitch	-0.098 p= 691	-0.067 p= .787	-0.198 p= .417	0.225 p= .355	0.227 p= 349	-0.201 p= 410
ship Laccn	-0.040 p= .869	0.134 p= .584	-0.069 p= .777	0.121 p= .621	0.324 p= 176	-0.420 p= 074
ship roll	0.371 p= .118	0.342 p= .151	0.268 p= 267	-0.030 p= .904	0.405 p= .085	-0.392 p= .097
sleep quality	0 496 p= 031	**0.723 p= 000**	0.609 p= 006	0.416 p= .076	0.278 p= .248	-0.180 p= 460
sleep time	0.584 p= 009	**0.793 p= .000**	**0.683 p= 001**	0.320 p= .182	0.198 p= .416	-0.168 p= .493
sleep motions	0.224 p= 357	0.361 p= .129	0.228 p= .347	0.482 p= .036	0.408 p= 083	-0.275 p= .254
sleep MS	0 359 p= .131	0.500 p= .029	0.410 p= .082	0.458 p= .049	0.497 p= .030	-0.305 p= .205
sleep (other)	0.441 p= 059	0.469 p= 043	0.525 p= 021	-0.011 p= .964	-0.282 p= 242	0.419 p= .074
mental fatigue	1	**0.848 p= 000**	**0.869 p= 000**	0.307 p= .201	0.426 p= .069	0.210 p= .388
physical fatigue	**0.848 p= 000**	1	**0.869 p= 000**	0.435 p= .063	0.310 p= .197	0.043 p= .861
sleepy	**0.869 p= 000**	**0.869 p= .000**	1	0.254 p= .295	0.189 p= .439	0.103 p= .674
headache	0 307 p= .201	0.435 p= 063	0.254 p= .295	1	0.251 p= .300	0.460 p= 048
apathy	0.426 p= 069	0.310 p= 197	0.189 p= .439	0.251 p= .300	1	-0.020 p= .937
tension	0.210 p= 388	0.043 p= .861	0.103 p= .674	0.460 p= 048	-0.020 p= .937	1
vomit	-0 038 p= 876	0.039 p= 873	-0.033 p= .893	0.048 p= .845	0.342 p= .151	-0.565 p= 012
nausea	0.098 p= .688	0.069 p= .779	-0.029 p= .907	0 535 p= 018	0.347 p= .146	0.238 p= 326
stomach awareness	0.320 p= .182	0.271 p= .261	0.170 p= .487	**0.725 p= 000**	0.231 p= .341	0.364 p= .126
symptom (other)	0.265 p= .272	0.099 p= .688	0.230 p= .344	-0.013 p= .957	-0.467 p= .044	0.394 p= .095
MISC	0 174 p= .477	0.127 p= 604	-0.002 p= .994	0.438 p= .061	0.493 p= .032	0.069 p= .780
MS medicine	**0.708 p= 001**	0.366 p= .123	0.505 p= .027	0.122 p= .619	0.105 p= .669	0.403 p= .087
decision making	0 595 p= 007	0.533 p= .019	0.513 p= 025	0.044 p= 858	0.221 p= 363	0.140 p= 569
concentration	**0.711 p= 001**	**0.734 p= 000**	**0.660 p= 002**	0.429 p= .067	0.111 p= .650	0.432 p= .065
memory	**0.749 p= 000**	**0.654 p= 002**	**0.723 p= 000**	0.108 p= .661	-0.050 p= .838	0 350 p= .142
simple tasks	**0.639 p= 003**	0.527 p= 020	0.597 p= .007	0.071 p= .772	-0.039 p= 873	0.299 p= 213
balance	0.357 p= .133	0.441 p= 059	0.350 p= .142	0.442 p= .058	0.338 p= .157	-0.071 p= .772
carrying / moving	0.227 p= 349	0.279 p= .247	0.184 p= .451	0.426 p= .069	0.384 p= 105	-0.173 p= 480
hand coordination	**0.711 p= 001**	0.436 p= .062	0.478 p= 038	0.334 p= .162	0.197 p= .418	0.404 p= 087
vision	0 470 p= 042	0.438 p= 061	0.495 p= .031	0.263 p= .276	-0.215 p= 376	0.451 p= .053
performance (other)	0.141 p= .564	-0.035 p= .886	0.083 p= .737	-0.001 p= .996	-0.105 p= .669	0.373 p= .115
more mistakes	0.375 p= 114	0.308 p= 199	0.180 p= 462	0.011 p= 963	0.027 p= .914	0.259 p= .285
longer time	**0.816 p= 000**	**0.642 p= 003**	**0.652 p= 002**	0.507 p= .027	0.397 p= 092	0.405 p= .085
not finished	-0.061 p= 804	0.178 p= .466	0.105 p= .670	0.334 p= .162	-0.084 p= .733	0.207 p= .395
abandoned	-0.066 p= 789	0.037 p= .880	-0.091 p= .710	0.612 p= .005	-0.095 p= 699	0.442 p= .058
not attempt	-0.269 p= .266	-0.211 p= 386	-0.363 p= 127	-0.116 p= 636	-0.038 p= .878	-0.198 p= 417
completion (other)	0.038 p= .879	-0.005 p= .983	-0.006 p= 982	0.135 p= 583	0.161 p= 509	0.216 p= 374
cold / flu	0.522 p= 022	0.352 p= .139	0.524 p= .021	-0.014 p= .954	-0.286 p= 236	0.328 p= 170
air quality	0.439 p= 060	0 554 p= 014	0.508 p= 026	0.242 p= .318	-0.246 p= 310	0.196 p= .421
noise	**0.842 p= 000**	**0.650 p= .003**	**0.722 p= 000**	0.099 p= .687	0.319 p= 183	0.220 p= .366
vibration	0.321 p= .180	0.255 p= .291	0.152 p= .534	0.255 p= .292	0.515 p= .024	-0.215 p= .376
too bright	0.032 p= .896	0.166 p= 496	0.237 p= .328	0.061 p= .805	-0.213 p= .380	-0.121 p= .623
too dark	0.245 p= 311	0.404 p= .086	0.282 p= .242	0.282 p= .242	0.057 p= .817	-0.040 p= 870
too hot	0.269 p= 265	0.082 p= 740	0.132 p= .591	0.121 p= .622	0.131 p= .593	0.138 p= .572
too cold	0.180 p= 462	0.135 p= 580	0.261 p= .281	0.040 p= 871	-0 319 p= 184	0 536 p= 018
other (other)	-0.071 p= 772	-0.228 p= 348	-0.195 p= 423	0.047 p= .847	-0.197 p= .418	0.436 p= .062

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), **shade** = not significant ($p > 0.05$)

Table D.2 6: Correlation, Ship D, cognitive tasks

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	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	0.416 p= 076	0.489 p= 034	0.518 p= 023	-0 543 p= 016	**0.706** p= .001	-0.415 p= 077
ship pitch	0.390 p= 099	0.380 p= 109	0.508 p= .026	-0.348 p= .144	**0.690** p= 001	-0.162 p= .507
ship Laccn	0.474 p= .040	0.315 p= .190	0.320 p= .182	-0.562 p= 012	**0.688** p= .001	-0 493 p= 032
ship roll	0.274 p= 257	0.048 p= .844	0.184 p= .450	-0.202 p= .406	0.460 p= 048	0.016 p= .949
sleep quality	0.515 p= 024	0.224 p= 356	0 393 p= .096	-0.405 p= 085	0.485 p= 036	0.028 p= 909
sleep time	0 342 p= 151	0.118 p= .630	0.255 p= .293	-0 118 p= .630	0.277 p= .251	0.256 p= .291
sleep motions	**0.721** p= 000	0.476 p= 039	0.528 p= .020	-0 523 p= .022	**0.751** p= 000	-0.151 p= 537
sleep MS	0 519 p= 023	0.253 p= 296	0.397 p= .093	-0.476 p= .039	0.569 p= 011	-0.028 p= 909
sleep (other)	**-0.619** p= .005	-0.274 p= 257	-0.151 p= .537	0.488 p= 034	-0.532 p= 019	0.468 p= 043
mental fatigue	-0.038 p= 876	0.098 p= .688	0.320 p= .182	0.265 p= 272	0.174 p= .477	**0.708** p= 001
physical fatigue	0.039 p= 873	0.069 p= 779	0.271 p= .261	0.099 p= .688	0.127 p= .604	0.366 p= 123
sleepy	-0 033 p= 893	-0 029 p= 907	0.170 p= .487	0.230 p= 344	-0.002 p= .994	0.505 p= 027
headache	0.048 p= 845	0.535 p= 018	**0.725** p= 000	-0.013 p= 957	0.438 p= .061	0.122 p= 619
apathy	0.342 p= 151	0.347 p= 146	0.231 p= .341	-0.467 p= 044	0.493 p= .032	0.105 p= .669
tension	-0.565 p= 012	0.238 p= 326	0.364 p= .126	0.394 p= .095	0.069 p= .780	0.403 p= 087
vomit	1	0.270 p= .263	0.167 p= .493	-0.539 p= 017	0.556 p= 013	-0.317 p= 187
nausea	0.270 p= .263	1	**0.846** p= 000	-0.233 p= .338	**0.711** p= 001	-0.056 p= 821
stomach awareness	0.167 p= 493	**0.846** p= 000	1	-0.075 p= 760	**0.728** p= .000	0.218 p= 369
symptom (other)	-0.539 p= 017	-0.233 p= 338	-0.075 p= .760	1	-0.476 p= 039	0.499 p= 029
MISC	0.556 p= 013	**0.711** p= 001	**0.728** p= .000	-0.476 p= .039	1	-0.083 p= 736
MS medicine	-0.317 p= 187	-0.056 p= .821	0.218 p= 369	0.499 p= 029	-0.083 p= .736	1
decision making	-0.203 p= 405	-0.255 p= .293	-0.137 p= .575	0.379 p= .109	-0.156 p= 525	0.410 p= .082
concentration	-0.473 p= 041	-0.040 p= 872	0.177 p= .468	0 428 p= .067	-0.148 p= .544	0.564 p= 012
memory	-0 464 p= 045	-0.352 p= 139	-0.054 p= .826	**0.622** p= 004	-0.326 p= .174	**0.721** p= .000
simple tasks	-0.548 p= 015	-0.401 p= 089	-0.139 p= .571	0.509 p= 026	-0.351 p= 141	**0.720** p= 001
balance	0 337 p= 158	0.503 p= 028	**0.636** p= 003	-0.324 p= .176	**0.733** p= 000	0.056 p= 821
carrying / moving	0 393 p= 096	0.491 p= 033	**0.630** p= .004	-0.373 p= 115	**0.726** p= 000	-0.021 p= 932
hand coordination	-0 232 p= 340	0.116 p= 636	0 445 p= .056	0.497 p= 031	0.191 p= 433	**0.752** p= 000
vision	-0.572 p= 010	-0.271 p= .261	0.058 p= .815	0.452 p= 052	-0.253 p= .295	0.456 p= 050
performance (other)	-0 497 p= 030	-0 329 p= 169	-0.200 p= 412	**0.684** p= .001	-0.553 p= .014	0 493 p= .032
more mistakes	-0 305 p= 204	-0.078 p= 750	0.034 p= .890	0.265 p= .274	-0.016 p= .948	0.373 p= 115
longer time	-0 042 p= 864	0.344 p= 149	**0.622** p= .004	0.099 p= .687	0.405 p= .085	**0.718** p= 001
not finished	-0.362 p= 128	-0.001 p= 998	-0.075 p= .759	-0.024 p= 923	-0.255 p= 292	-0.235 p= 333
abandoned	-0.100 p= .684	0.555 p= 014	**0.638** p= 003	-0.147 p= .547	0.427 p= .068	-0.044 p= 859
not attempt	0.394 p= .095	-0.155 p= 527	-0.168 p= .491	-0.258 p= .286	0.052 p= .832	-0.204 p= 403
completion (other)	0.353 p= 138	0.222 p= 360	0.148 p= .545	0.054 p= .826	0.256 p= .289	-0.202 p= .406
cold / flu	-0 569 p= 011	-0 419 p= 074	-0.154 p= .530	**0.716** p= 001	-0 573 p= 010	**0.742** p= 000
air quality	0.040 p= .870	-0.002 p= 994	0.233 p= .336	0.165 p= .499	0.097 p= 693	0.253 p= .297
noise	-0 214 p= 378	-0.084 p= 731	0.121 p= 621	0.281 p= 243	-0.020 p= .936	**0.687** p= 001
vibration	0.499 p= 030	0.524 p= 021	0.525 p= 021	-0.264 p= .275	**0.724** p= .000	0.077 p= .756
too bright	0.051 p= .835	0.113 p= .646	0.003 p= .991	0.159 p= .516	0.063 p= 799	-0.189 p= .439
too dark	0.310 p= 196	0.101 p= .681	0.176 p= 470	-0.176 p= .470	0.281 p= .245	-0.209 p= .391
too hot	-0.241 p= 320	0.238 p= .326	0.202 p= 407	0.326 p= .173	-0.089 p= .717	0.452 p= .052
too cold	-0.441 p= 059	-0 239 p= .324	-0.108 p= 660	0.291 p= .226	-0.376 p= .113	0.350 p= .142
other (other)	-0.352 p= 139	-0.102 p= .679	0.030 p= .901	0 486 p= .035	-0.230 p= .343	0.302 p= .209

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2.6: Correlation, Ship D, cognitive tasks (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	-0.251 p= .301	-0.317 p= .186	-0.503 p= .028	-0.461 p= .047
ship pitch	-0.125 p= .611	-0.268 p= .266	-0.304 p= .206	-0.267 p= .268
ship Laccn	-0.114 p= .642	-0.240 p= .323	-0.386 p= .103	-0.372 p= .116
ship roll	0.224 p= .357	0.041 p= .867	0.076 p= .757	0.088 p= .719
sleep quality	0.065 p= .791	0.237 p= .328	0.142 p= 561	0.024 p= .923
sleep time	0.314 p= 190	0.463 p= .046	0.390 p= .099	0.321 p= .180
sleep motions	-0.185 p= .449	-0.075 p= .761	-0.265 p= .273	-0.316 p= .188
sleep MS	0.013 p= .958	0.122 p= .619	-0.026 p= .916	-0.056 p= .820
sleep (other)	0.457 p= .049	**0.646 p= .003**	**0.730 p= .000**	**0.700 p= .001**
mental fatigue	0.595 p= 007	**0.711 p= .001**	**0.749 p= .000**	**0.639 p= 003**
physical fatigue	0.533 p= .019	**0.734 p= 000**	**0.654 p= 002**	0.527 p= 020
sleepy	0.513 p= .025	**0.660 p= .002**	**0.723 p= .000**	0 597 p= 007
headache	0.044 p= .858	0.429 p= .067	0.108 p= .661	0.071 p= 772
apathy	0.221 p= .363	0.111 p= .650	-0.050 p= .838	-0.039 p= .873
tension	0.140 p= 569	0.432 p= .065	0.350 p= 142	0.299 p= .213
vomit	-0.203 p= .405	-0.473 p= 041	-0.464 p= 045	-0.548 p= 015
nausea	-0.255 p= .293	-0.040 p= .872	-0.352 p= .139	-0 401 p= .089
stomach awareness	-0.137 p= 575	0.177 p= 468	-0.054 p= .826	-0.139 p= 571
symptom (other)	0.379 p= .109	0.428 p= 067	**0.622 p= 004**	0.509 p= 026
MISC	-0.156 p= .525	-0.148 p= .544	-0.326 p= .174	-0.351 p= .141
MS medicine	0.410 p= 082	0.564 p= 012	**0.721 p= .000**	**0.720 p= .001**
decision making	1	**0.756 p= 000**	**0.790 p= .000**	**0.741 p= 000**
concentration	**0.756 p= 000**	1	**0.858 p= 000**	**0.812 p= 000**
memory	**0.790 p= 000**	**0.858 p= 000**	1	**0.903 p= 000**
simple tasks	**0.741 p= .000**	**0.812 p= 000**	**0.903 p= .000**	1
balance	0.037 p= .879	0.211 p= .387	0.001 p= .996	-0.019 p= .939
carrying / moving	-0.064 p= 795	0.045 p= .854	-0.147 p= 548	-0 156 p= .522
hand coordination	0 453 p= 052	0.594 p= 007	**0.628 p= 004**	0.540 p= .017
vision	0.560 p= 013	**0.765 p= 000**	**0.764 p= .000**	**0.730 p= 000**
performance (other)	0.393 p= .096	0.310 p= 197	0.510 p= .026	0.478 p= .038
more mistakes	0.449 p= 054	0 528 p= 020	0.451 p= 053	0.471 p= 042
longer time	0.488 p= .034	**0.671 p= 002**	0.602 p= 006	0.542 p= 017
not finished	-0.075 p= 761	0.309 p= .198	0.045 p= 855	0.068 p= 783
abandoned	-0.219 p= 368	0.217 p= .373	-0.154 p= .529	-0.119 p= 628
not attempt	-0.163 p= 505	-0.319 p= .183	-0.245 p= .311	-0.322 p= .179
completion (other)	0.123 p= .615	-0.165 p= .500	-0.099 p= .686	-0.305 p= .204
cold / flu	0.442 p= .058	**0.623 p= 004**	**0.814 p= .000**	**0.761 p= .000**
air quality	0.194 p= .427	0.440 p= 059	0.434 p= 063	0.255 p= .292
noise	0.391 p= .098	0.584 p= 009	**0.696 p= 001**	0.550 p= 015
vibration	-0.020 p= .936	-0.004 p= .988	-0.147 p= .548	-0.200 p= 413
too bright	-0.067 p= .787	0.116 p= .636	0.002 p= .992	-0.055 p= 823
too dark	0.121 p= .621	0 168 p= 492	0.079 p= .749	-0.094 p= .702
too hot	0.011 p= .965	0.274 p= .256	0.159 p= 515	0.181 p= .458
too cold	0.281 p= .245	0.418 p= .075	0.512 p= 025	0.443 p= .058
other (other)	0.029 p= .907	0.038 p= 876	0.166 p= .496	0.131 p= 593

Legend bold = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2 6 Correlation, Ship D, cognitive tasks (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	0.565 p= 012	**0.677** p= 001	-0.109 p= .656	-0 363 p= .127	-0.350 p= 142
ship pitch	**0.624** p= 004	**0.740** p= 000	0.134 p= .583	-0.263 p= .277	-0.215 p= 376
ship Laccn	**0.676** p= 002	**0.728** p= 000	-0.048 p= .846	-0.268 p= .268	**-0.637** p= .003
ship roll	**0.652** p= 002	**0.708** p= 001	0.409 p= .082	-0.060 p= .808	-0.241 p= .319
sleep quality	**0.650** p= 003	0.504 p= 028	0.126 p= .608	0.112 p= .647	-0.517 p= 023
sleep time	0.602 p= 006	0.410 p= .081	0.233 p= .338	0.136 p= 578	-0.233 p= .338
sleep motions	**0.790** p= .000	**0.766** p= .000	0.128 p= 603	-0.219 p= .368	**-0.624** p= 004
sleep MS	**0.807** p= 000	**0.817** p= .000	0.212 p= .383	0.004 p= .986	-0.429 p= .067
sleep (other)	-0.326 p= 173	-0.509 p= 026	0.180 p= .461	0.559 p= .013	0.431 p= 065
mental fatigue	0.357 p= 133	0 227 p= .349	**0.711** p= 001	0 470 p= 042	0.141 p= .564
physical fatigue	0.441 p= .059	0.279 p= .247	0.436 p= .062	0.438 p= .061	-0.035 p= 886
sleepy	0.350 p= 142	0.184 p= .451	0 478 p= 038	0.495 p= 031	0.083 p= 737
headache	0.442 p= .058	0.426 p= .069	0.334 p= .162	0.263 p= .276	-0 001 p= 996
apathy	0.338 p= 157	0 384 p= 105	0.197 p= 418	-0.215 p= .376	-0 105 p= 669
tension	-0 071 p= 772	-0.173 p= 480	0.404 p= 087	0.451 p= .053	0.373 p= 115
vomit	0.337 p= 158	0.393 p= .096	-0.232 p= .340	-0.572 p= 010	-0.497 p= 030
nausea	0.503 p= 028	0.491 p= 033	0.116 p= 636	-0.271 p= 261	-0.329 p= 169
stomach awareness	**0.636** p= 003	**0.630** p= 004	0.445 p= 056	0.058 p= 815	-0.200 p= 412
symptom (other)	-0.324 p= 176	-0.373 p= .115	0.497 p= 031	0.452 p= 052	**0.684** p= 001
MISC	**0.733** p= 000	**0.726** p= .000	0.191 p= 433	-0.253 p= .295	-0.553 p= 014
MS medicine	0.056 p= .821	-0.021 p= .932	**0.752** p= 000	0 456 p= 050	0 493 p= 032
decision making	0 037 p= .879	-0.064 p= .795	0.453 p= .052	0.560 p= 013	0.393 p= .096
concentration	0.211 p= 387	0.045 p= .854	0.594 p= 007	**0.765** p= 000	0.310 p= 197
memory	0 001 p= .998	-0.147 p= .548	**0.628** p= 004	**0.764** p= 000	0 510 p= 026
simple tasks	-0.019 p= 939	-0.156 p= 522	0.540 p= 017	**0.730** p= 000	0.478 p= 038
balance	1	**0.941** p= 000	0.414 p= 078	0.033 p= .893	-0.475 p= 040
carrying / moving	**0.941** p= 000	1	0.382 p= .107	-0.113 p= .645	-0.391 p= .096
hand coordination	0.414 p= 078	0.382 p= 107	1	0.489 p= .033	0.338 p= 157
vision	0 033 p= 893	-0.113 p= .645	0.489 p= 033	1	0.208 p= .394
performance (other)	-0.475 p= 040	-0.391 p= 096	0.338 p= .157	0.208 p= .394	1
more mistakes	0.188 p= 441	0.063 p= .797	0.504 p= .028	0.458 p= 049	0.013 p= .957
longer time	0.550 p= 015	0.444 p= .057	**0.755** p= .000	0.522 p= 022	0.084 p= 733
not finished	-0.136 p= 578	-0.229 p= .346	-0.308 p= .200	0.389 p= .100	-0.171 p= .485
abandoned	0.443 p= .057	0.350 p= .142	0.135 p= 583	0.265 p= 272	-0.396 p= 093
not attempt	-0.190 p= 437	-0.116 p= .637	-0.252 p= .298	-0.231 p= .341	-0.170 p= 487
completion (other)	-0.193 p= 429	-0.165 p= .499	-0.058 p= .814	-0.261 p= .281	0.112 p= .648
cold / flu	-0.315 p= .189	-0.396 p= .093	0.463 p= 046	**0.646** p= .003	0.588 p= 008
air quality	0.214 p= 379	0.043 p= .863	0.223 p= .358	0.344 p= .149	-0.194 p= 427
noise	0.165 p= 501	0 071 p= .773	0.610 p= 006	0.419 p= .074	0.185 p= .449
vibration	**0.814** p= 000	**0.854** p= .000	0.434 p= .063	-0.319 p= .183	-0.356 p= .134
too bright	0.383 p= 105	0.268 p= .268	0 010 p= .966	0.105 p= .668	-0.374 p= .115
too dark	0.106 p= .664	0.049 p= .843	-0.147 p= .547	0.177 p= .468	-0.449 p= .054
too hot	0 205 p= .399	0.253 p= 297	0.530 p= .020	-0.052 p= .833	0.280 p= .245
too cold	-0.407 p= .084	-0.580 p= 009	0.018 p= .942	**0.671** p= .002	0.228 p= .347
other (other)	-0.222 p= 361	-0.117 p= 635	0.388 p= .101	0.014 p= .956	**0.662** p= 002

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0.05), shade = not significant (p > 0 05)

Table D 2.6· Correlation, Ship D, cognitive tasks (page 7 of 9)

	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	-0.224 p= .357	0.050 p= .840	-0.261 p= 280	0.293 p= .223	0.146 p= .552	0.084 p= .732
ship pitch	-0.181 p= .459	0.191 p= .434	-0.461 p= .047	0.113 p= .646	0.039 p= .874	0.003 p= .991
ship Laccn	-0.083 p= 737	0.015 p= .951	-0.189 p= .438	0.123 p= .615	0.013 p= .958	0.045 p= .854
ship roll	0.134 p= .583	0.292 p= .225	-0.442 p= .058	-0.227 p= .350	-0.110 p= .654	-0.106 p= .667
sleep quality	-0.020 p= 936	0 471 p= 042	0.059 p= .811	0.232 p= .340	0.000 p= .999	0.043 p= .862
sleep time	0.134 p= .583	0.491 p= .033	-0.001 p= 996	0.129 p= .598	-0.181 p= .457	-0.091 p= .712
sleep motions	-0.146 p= .546	0.323 p= .178	-0.086 p= .727	0.290 p= 229	0.151 p= .536	0.015 p= .952
sleep MS	-0.104 p= 673	0.426 p= .069	0.052 p= .831	0.159 p= .516	-0.011 p= .963	-0.224 p= .357
sleep (other)	0.355 p= 136	0.296 p= .218	0.204 p= .403	-0.073 p= .767	-0.223 p= .358	-0.020 p= .936
mental fatigue	0.375 p= 114	**0.816** p= .000	-0.061 p= .804	-0.066 p= .789	-0.269 p= .266	0.038 p= .879
physical fatigue	0.308 p= 199	**0.642** p= .003	0.178 p= .466	0.037 p= .880	-0.211 p= .386	-0.005 p= .983
sleepy	0.180 p= 462	**0.652** p= 002	0.105 p= .670	-0.091 p= .710	-0.363 p= .127	-0.006 p= .982
headache	0.011 p= 963	0.507 p= 027	0.334 p= .162	0.612 p= .005	-0.116 p= .636	0.135 p= .583
apathy	0.027 p= 914	0.397 p= 092	-0.084 p= .733	-0.095 p= .699	-0.038 p= 878	0.161 p= 509
tension	0.259 p= .285	0.405 p= 085	0.207 p= .395	0.442 p= .058	-0.198 p= .417	0.216 p= 374
vomit	-0 305 p= 204	-0.042 p= .864	-0.362 p= .128	-0.100 p= .684	0.394 p= .095	0.353 p= .138
nausea	-0.078 p= 750	0 344 p= 149	-0.001 p= .998	0.555 p= .014	-0.155 p= .527	0.222 p= .380
stomach awareness	0.034 p= .890	**0.622** p= .004	-0.075 p= .759	**0.638** p= .003	-0.168 p= .491	0.148 p= .545
symptom (other)	0.265 p= 274	0.099 p= .687	-0.024 p= .923	-0.147 p= 547	-0.258 p= .286	0.054 p= 826
MISC	-0.016 p= 948	0.405 p= .085	-0.255 p= 292	0.427 p= .068	0.052 p= .832	0.256 p= .289
MS medicine	0 373 p= 115	**0.718** p= .001	-0.235 p= .333	-0.044 p= .859	-0.204 p= .403	-0.202 p= .406
decision making	0.449 p= 054	0 488 p= 034	-0.075 p= .761	-0.219 p= .368	-0.163 p= 505	0.123 p= .615
concentration	0.528 p= 020	**0.671** p= 002	0.309 p= .198	0.217 p= .373	-0.319 p= .183	-0.165 p= .500
memory	0 451 p= 053	0.602 p= 006	0.045 p= .855	-0.154 p= .529	-0.245 p= .311	-0.099 p= 686
simple tasks	0 471 p= .042	0.542 p= .017	0.068 p= .783	-0.119 p= .626	-0.322 p= .179	-0.305 p= .204
balance	0 188 p= 441	0.550 p= .015	-0.136 p= .578	0.443 p= .057	-0.190 p= .437	-0.193 p= .429
carrying / moving	0.063 p= 797	0 444 p= 057	-0.229 p= 346	0.350 p= .142	-0.116 p= 637	-0.165 p= 499
hand coordination	0.504 p= .028	**0.755** p= 000	-0.308 p= .200	0.135 p= .583	-0.252 p= .298	-0.058 p= 814
vision	0 458 p= 049	0 522 p= 022	0.389 p= 100	0.265 p= .272	-0.231 p= 341	-0.261 p= .281
performance (other)	0.013 p= 957	0.084 p= .733	-0.171 p= 485	-0.396 p= .093	-0.170 p= 487	0.112 p= .648
more mistakes	1	0.422 p= .072	-0.063 p= .799	0.278 p= .249	0.062 p= .802	-0.206 p= .398
longer time	0 422 p= 072	1	-0.137 p= 576	0.293 p= .224	-0.156 p= 525	-0.054 p= 825
not finished	-0.063 p= 799	-0.137 p= .576	1	0.377 p= 111	-0.214 p= .380	-0.288 p= .232
abandoned	0.278 p= .249	0.293 p= 224	0.377 p= .111	1	-0.186 p= 445	-0.109 p= 655
not attempt	0.062 p= .802	-0.156 p= .525	-0.214 p= .380	-0.186 p= .445	1	0.099 p= .687
completion (other)	-0.206 p= .398	-0.054 p= 825	-0.288 p= .232	-0.109 p= .655	0.099 p= .687	1
cold / flu	0.272 p= .261	0.333 p= 163	0.176 p= .472	-0.116 p= .638	-0.332 p= 165	-0.186 p= .446
air quality	0.298 p= 215	0.344 p= 150	0.115 p= .639	0.354 p= .137	-0.039 p= .875	0.198 p= 417
noise	0.186 p= .445	0.606 p= .006	0.041 p= .869	-0.227 p= .350	-0.151 p= .537	-0.131 p= .592
vibration	0.093 p= 704	0.386 p= .102	-0.387 p= .101	0.118 p= .630	0.023 p= .925	-0.038 p= .876
too bright	0.137 p= 575	-0.085 p= .729	0.396 p= 093	0.226 p= .353	-0.147 p= .548	-0.302 p= 209
too dark	-0.041 p= 866	0 100 p= 683	0.360 p= 130	0.229 p= .346	0.142 p= .562	0.379 p= .109
too hot	0 327 p= 171	0.27[illegible] p= .258	-0.117 p= .634	0.050 p= .840	-0.115 p= .640	-0.340 p= 154
too cold	0.199 p= 413	0 280 p= 246	0.340 p= .155	0.130 p= 595	0.119 p= .627	0.001 p= 996
other (other)	0.298 p= 216	0.075 p= 759	-0.415 p= .077	-0.127 p= .606	0.256 p= .290	0.115 p= .640

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2 6: Correlation, Ship D, cognitive tasks (page 8 of 9)

	cold / flu	air quality	noise	vibration
ship Vaccn	**-0.751 p= .000**	-0.242 p= .317	-0.431 p= 066	0.491 p= 033
ship pitch	-0.566 p= 012	-0.268 p= .267	-0.238 p= .327	0.582 p= 009
ship Laccn	**-0.699 p= 001**	-0.086 p= .727	-0.171 p= .485	**0.624 p= 004**
ship roll	-0.272 p= 259	-0.114 p= .641	0.268 p= .267	**0.708 p= 001**
sleep quality	-0.124 p= .614	0.537 p= .018	0.316 p= 188	0.401 p= .088
sleep time	0.123 p= .617	0.563 p= .012	0.366 p= 123	0.384 p= .104
sleep motions	-0.504 p= 028	0.160 p= .514	0.080 p= .744	**0.759 p= 000**
sleep MS	-0.285 p= .236	0.074 p= .762	0.248 p= .307	**0.679 p= .001**
sleep (other)	**0.703 p= 001**	0.437 p= .061	0.406 p= .084	-0.539 p= .017
mental fatigue	0.522 p= 022	0.439 p= 060	**0.842 p= .000**	0.321 p= .180
physical fatigue	0.352 p= 139	0.554 p= 014	**0.650 p= 003**	0.255 p= .291
sleepy	0.524 p= 021	0 508 p= 026	**0.722 p= 000**	0.152 p= 534
headache	-0.014 p= 954	0.242 p= 318	0.099 p= .687	0.255 p= .292
apathy	-0.286 p= .236	-0.246 p= .310	0.319 p= 183	0.515 p= 024
tension	0.328 p= 170	0.196 p= .421	0.220 p= .366	-0.215 p= .376
vomit	-0.569 p= .011	0.040 p= 870	-0.214 p= .378	0.499 p= 030
nausea	-0.419 p= .074	-0.002 p= .994	-0.084 p= 731	0.524 p= .021
stomach awareness	-0.154 p= 530	0.233 p= .336	0.121 p= .621	0.525 p= .021
symptom (other)	**0.716 p= .001**	0.165 p= .499	0.281 p= 243	-0.264 p= .275
MISC	-0 573 p= 010	0 097 p= .693	-0.020 p= 936	**0.724 p= .000**
MS medicine	**0.742 p= 000**	0.253 p= 297	**0.687 p= .001**	0.077 p= 756
decision making	0.442 p= .058	0.194 p= .427	0.391 p= .098	-0.020 p= 936
concentration	**0.623 p= 004**	0.440 p= .059	0.584 p= .009	-0.004 p= .988
memory	**0.814 p= 000**	0.434 p= .063	**0.696 p= .001**	-0.147 p= 548
simple tasks	**0.761 p= 000**	0.255 p= .292	0.550 p= .015	-0.200 p= 413
balance	-0.315 p= 189	0.214 p= 379	0.165 p= .501	**0.814 p= 000**
carrying / moving	-0 396 p= 093	0.043 p= .863	0.071 p= .773	**0.854 p= 000**
hand coordination	0.463 p= .046	0.223 p= .358	0.610 p= 006	0.434 p= 063
vision	**0.646 p= 003**	0.344 p= .149	0.419 p= .074	-0.319 p= 183
performance (other)	0.588 p= 008	-0.194 p= .427	0.185 p= .449	-0.356 p= 134
more mistakes	0.272 p= .261	0.298 p= .215	0.186 p= 445	0.093 p= .704
longer time	0.333 p= .163	0.344 p= .150	0.606 p= 006	0 386 p= .102
not finished	0 176 p= .472	0.115 p= .639	0.041 p= 869	-0.387 p= .101
abandoned	-0.116 p= .636	0.354 p= .137	-0.227 p= .350	0.118 p= .630
not attempt	-0.332 p= .165	-0.039 p= .875	-0.151 p= .537	0.023 p= .925
completion (other)	-0.186 p= .446	0.198 p= .417	-0.131 p= .592	-0.038 p= .876
cold / flu	1	0.417 p= 076	0.584 p= .009	-0.401 p= .089
air quality	0.417 p= .076	1	0.351 p= .141	-0.000 p= .999
noise	0.584 p= .009	0.351 p= .141	1	0.238 p= .326
vibration	-0.401 p= .089	-0.000 p= .999	0.238 p= .326	1
too bright	-0.025 p= .918	0.184 p= .451	0.049 p= .843	0.298 p= .215
too dark	0.035 p= .887	**0.668 p= 002**	0.183 p= .454	0.009 p= .972
too hot	0 241 p= .320	-0.096 p= 696	0.340 p= .154	0.447 p= .055
too cold	0.529 p= .020	0.322 p= .179	0.228 p= .349	**-0.671 p= 002**
other (other)	0 166 p= .497	-0.186 p= 446	-0.038 p= .876	-0.069 p= .780

Legend bold = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2.6: Correlation, Ship D, cognitive tasks (page 9 of 9)

	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	-0.148 p= .543	-0.015 p= .950	-0.231 p= .341	-0.490 p= .033	-0.046 p= .850
ship pitch	-0.128 p= .602	-0.131 p= .592	-0.149 p= .542	-0.524 p= .021	0.013 p= .958
ship Laccn	0.142 p= .562	0.233 p= .338	-0.250 p= .302	**-0.632** p= .004	-0.367 p= .123
ship roll	0.093 p= .706	-0.030 p= .901	0.100 p= .684	-0.604 p= .006	-0.104 p= .673
sleep quality	0.169 p= .490	0.480 p= .037	-0.233 p= .336	-0.010 p= .969	-0.491 p= .033
sleep time	0.247 p= .307	0.270 p= .264	-0.013 p= .959	-0.035 p= .886	-0.387 p= .101
sleep motions	0.303 p= .206	0.295 p= .221	0.011 p= .963	-0.423 p= .071	-0.377 p= .112
sleep MS	0.308 p= .199	0.235 p= .333	0.036 p= .885	-0.378 p= .111	-0.390 p= .098
sleep (other)	-0.156 p= .523	0.030 p= .902	0.043 p= .862	**0.688** p= .001	0.199 p= .414
mental fatigue	0.032 p= .896	0.245 p= .311	0.269 p= .266	0.180 p= .462	-0.071 p= .772
physical fatigue	0.166 p= .496	0.404 p= .086	0.082 p= .740	0.135 p= .580	-0.228 p= .348
sleepy	0.237 p= .328	0.282 p= .242	0.132 p= .591	0.261 p= .281	-0.195 p= .423
headache	0.061 p= .805	0.282 p= .242	0.121 p= .622	0.040 p= .871	0.047 p= .847
apathy	-0.213 p= .380	0.057 p= .817	0.131 p= .593	-0.319 p= .184	-0.197 p= .418
tension	-0.121 p= .623	-0.040 p= .870	0.138 p= .572	0.536 p= .018	0.436 p= .062
vomit	0.051 p= .835	0.310 p= .196	-0.241 p= .320	-0.441 p= .059	-0.352 p= .139
nausea	0.113 p= .646	0.101 p= .681	0.238 p= .326	-0.239 p= .324	-0.102 p= .679
stomach awareness	0.003 p= .991	0.176 p= .470	0.202 p= .407	-0.108 p= .660	0.030 p= .901
symptom (other)	0.159 p= .516	-0.176 p= .470	0.326 p= .173	0.291 p= .226	0.486 p= .035
MISC	0.063 p= .799	0.281 p= .245	-0.089 p= .717	-0.376 p= .113	-0.230 p= .343
MS medicine	-0.189 p= .439	-0.209 p= .391	0.452 p= .052	0.350 p= .142	0.302 p= .209
decision making	-0.067 p= .787	0.121 p= .621	0.011 p= .965	0.281 p= .245	0.029 p= .907
concentration	0.116 p= .636	0.168 p= .492	0.274 p= .256	0.418 p= .075	0.038 p= .876
memory	0.002 p= .992	0.079 p= .749	0.159 p= .515	0.512 p= .025	0.166 p= .496
simple tasks	-0.055 p= .823	-0.094 p= .702	0.181 p= .458	0.443 p= .058	0.131 p= .593
balance	0.383 p= .105	0.106 p= .664	0.205 p= .399	-0.407 p= .084	-0.222 p= .361
carrying / moving	0.268 p= .268	0.049 p= .843	0.253 p= .297	-0.580 p= .009	-0.117 p= .635
hand coordination	0.010 p= .966	-0.147 p= .547	0.530 p= .020	0.018 p= .942	0.388 p= .101
vision	0.105 p= .668	0.177 p= .468	-0.052 p= .833	**0.671** p= .002	0.014 p= .956
performance (other)	-0.374 p= .115	-0.449 p= .054	0.280 p= .245	0.228 p= .347	**0.662** p= .002
more mistakes	0.137 p= .575	-0.041 p= .866	0.327 p= .171	0.199 p= .413	0.298 p= .216
longer time	-0.085 p= .729	0.100 p= .683	0.273 p= .258	0.280 p= .246	0.075 p= .759
not finished	0.398 p= .093	0.360 p= .130	-0.117 p= .634	0.340 p= .155	-0.415 p= .077
abandoned	0.226 p= .353	0.229 p= .346	0.050 p= .840	0.130 p= .595	-0.127 p= .606
not attempt	-0.147 p= .548	0.142 p= .562	-0.115 p= .640	0.119 p= .627	0.256 p= .290
completion (other)	-0.302 p= .209	0.379 p= .109	-0.340 p= .154	0.001 p= .998	0.115 p= .640
cold / flu	-0.025 p= .918	0.035 p= .887	0.241 p= .320	0.529 p= .020	0.166 p= .497
air quality	0.184 p= .451	**0.668** p= .002	-0.096 p= .696	0.322 p= .179	-0.186 p= .446
noise	0.049 p= .843	0.183 p= .454	0.340 p= .154	0.228 p= .349	-0.038 p= .876
vibration	0.298 p= .215	0.009 p= .972	0.447 p= .055	**-0.671** p= .002	-0.069 p= .780
too bright	1	0.182 p= .457	0.269 p= .266	-0.164 p= .501	-0.269 p= .265
too dark	0.182 p= .457	1	-0.424 p= .071	0.159 p= .515	-0.533 p= .019
too hot	0.269 p= .266	-0.424 p= .071	1	-0.265 p= .273	0.449 p= .054
too cold	-0.164 p= .501	0.159 p= .515	-0.265 p= .273	1	0.080 p= .746
other (other)	-0.269 p= .265	-0.533 p= .019	0.449 p= .054	0.080 p= .746	1

Legend: **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 2.7: Correlation, Ship D, physical tasks (page 1 of 9)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.914** p= 000	**0.766** p= 000	0.434 p= 063
ship pitch	**0.914** p= 000	1	**0.753** p= .000	**0.638** p= 003
ship Laccn	**0.766** p= 000	**0.753** p= 000	1	**0.775** p= 000
ship roll	0.434 p= 063	**0.638** p= 003	**0.775** p= .000	1
sleep quality	0.328 p= 173	0.182 p= .455	0.337 p= .158	0.118 p= .630
sleep time	0.185 p= .448	0.051 p= 835	0 141 p= .564	-0.017 p= 946
sleep motions	0 566 p= 012	0.558 p= 013	**0.696** p= .001	0.572 p= 010
sleep MS	0.427 p= .068	0.403 p= .087	0.340 p= .155	0.289 p= .230
sleep (other)	-0.338 p= .157	-0.358 p= 133	-0.421 p= .073	-0.364 p= .126
mental fatigue	0.246 p= 311	0.067 p= 785	0.183 p= .455	-0.046 p= .852
physical fatigue	0 289 p= 230	0.261 p= 281	0.142 p= .561	0.204 p= .403
sleepy	0.411 p= 081	0.308 p= 200	0.368 p= .121	0.266 p= 271
headache	**0.729** p= 000	**0.718** p= 001	**0.647** p= 003	0.599 p= 007
apathy	**0.708** p= .001	0 557 p= 013	0 460 p= 048	0.180 p= .460
tension	0 089 p= .718	0.108 p= .660	0.408 p= .083	0.413 p= .079
vomit	0.585 p= 009	**0.653** p= 002	0 560 p= .013	0 435 p= .062
nausea	0.554 p= .014	0.600 p= 007	0.447 p= .055	0.424 p= 071
stomach awareness	**0.680** p= 001	**0.721** p= 000	**0.695** p= .001	**0.625** p= 004
symptom (other)	-0.599 p= 007	-0 511 p= .025	-0.535 p= 018	-0.326 p= .173
MISC	**0.626** p= 004	**0.644** p= 003	0.573 p= 010	0.502 p= 029
MS medicine	0.273 p= .258	0.455 p= .051	0 111 p= .650	0.342 p= .151
decision making	-0.011 p= 965	-0.196 p= .422	-0.150 p= .539	-0.369 p= 120
concentration	-0.058 p= 814	-0.178 p= .466	-0.260 p= .282	-0.321 p= .181
memory	-0.186 p= .445	-0.290 p= .228	-0.283 p= .240	-0.314 p= 190
simple tasks	0.308 p= .200	0.114 p= .642	0.092 p= 708	-0.212 p= .383
balance	**0.756** p= 000	**0.714** p= 001	**0.665** p= 002	0.516 p= 024
carrying / moving	**0.636** p= 003	**0.686** p= 001	**0.733** p= 000	**0.689** p= 001
hand coordination	0 499 p= 029	0.405 p= .086	0.348 p= .145	0.197 p= 418
vision	0.061 p= .803	-0.032 p= .895	-0.187 p= .444	-0.166 p= 496
performance (other)	0.396 p= .094	0.249 p= .304	0.050 p= .840	-0.239 p= .325
more mistakes	-0.034 p= 890	-0.185 p= .449	-0.036 p= 883	-0.263 p= .277
longer time	0.439 p= 060	0.349 p= .143	0.427 p= .068	0.273 p= .258
not finished	0.285 p= 238	0.318 p= .185	0.520 p= 023	0.469 p= 043
abandoned	**0.695** p= 001	**0.712** p= .001	**0.751** p= .000	**0.656** p= 002
not attempt	0.423 p= .071	0.461 p= .047	0.525 p= .021	0.495 p= 031
completion (other)	0.345 p= 149	0.376 p= .113	0.483 p= 036	0.432 p= 065
cold / flu	-0 539 p= .017	-0.499 p= .029	-0.493 p= 032	-0.278 p= .250
air quality	-0.256 p= 291	-0.218 p= .370	-0.209 p= .391	-0.044 p= .857
noise	-0.152 p= 533	-0.144 p= .556	0.110 p= .653	0.111 p= 652
vibration	0.559 p= 013	0.582 p= 009	**0.756** p= 000	**0.634** p= 004
too bright	0.315 p= .189	0.243 p= .317	0.174 p= .476	0.129 p= 599
too dark	-0.192 p= .431	-0.042 p= 865	-0.251 p= .300	-0.123 p= 617
too hot	0.330 p= .167	0.329 p= 168	0.453 p= .052	0.414 p= .078
too cold	-0.530 p= .020	-0.458 p= 048	-0.373 p= 116	-0.162 p= .506
other (other)	0.100 p= .683	0.162 p= 508	-0.042 p= .864	0.030 p= .903

Legend bold = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2 7 Correlation, Ship D, physical tasks (page 2 of 9)

	sleep quality	sleep time	sleep motions	sleep MS	sleep (other)
ship Vaccn	0.326 p= 173	0.185 p= .448	0.566 p= 012	0.427 p= .068	-0.338 p= 157
ship pitch	0.182 p= 456	0.051 p= .835	0.558 p= .013	0.403 p= 087	-0.358 p= 133
ship Laccn	0.337 p= .158	0.141 p= .564	**0.696 p= .001**	0.340 p= .155	-0.421 p= 073
ship roll	0.118 p= .630	-0.017 p= .946	0.572 p= .010	0.289 p= .230	-0.364 p= .126
sleep quality	1	**0.848 p= .000**	**0.758 p= .000**	0.590 p= .008	0.288 p= 232
sleep time	**0.848 p= .000**	1	0.465 p= 045	0.395 p= .094	0.306 p= .202
sleep motions	**0.758 p= .000**	0.465 p= 045	1	**0.620 p= .005**	-0.105 p= .667
sleep MS	0.590 p= 008	0.395 p= .094	**0.620 p= .005**	1	-0.080 p= .744
sleep (other)	0.288 p= .232	0.306 p= .202	-0.105 p= .667	-0.080 p= .744	1
mental fatigue	**0.782 p= .000**	**0.761 p= .000**	0.487 p= .034	0.503 p= .028	0.389 p= .099
physical fatigue	**0.661 p= 002**	**0.648 p= 003**	0.483 p= 036	**0.739 p= .000**	0.178 p= .466
sleepy	**0.731 p= 000**	**0.669 p= 002**	0.532 p= 019	0.524 p= .021	0.146 p= 550
headache	0.200 p= 412	0.174 p= .477	0.490 p= .033	0.476 p= .039	-0.541 p= 017
apathy	0.605 p= .006	0.551 p= 014	0.534 p= 019	0.594 p= 007	-0.090 p= 714
tension	0.215 p= 376	0.191 p= .433	0.280 p= .246	0.252 p= .297	0.053 p= 828
vomit	0.363 p= 126	0.173 p= 480	0.578 p= 010	0.498 p= 030	0.001 p= 997
nausea	0.212 p= 384	0.057 p= 817	0.545 p= 016	0.212 p= 384	-0.005 p= .985
stomach awareness	0.383 p= .106	0.211 p= 386	**0.716 p= 001**	0.370 p= .119	-0.128 p= .601
symptom (other)	-0.380 p= 108	-0.262 p= .278	-0.481 p= .037	-0.189 p= 438	0.359 p= .131
MISC	0 488 p= 034	0.283 p= .240	**0.813 p= 000**	0.329 p= 169	-0.061 p= .804
MS medicine	-0.221 p= .362	-0.179 p= .463	0.022 p= 930	0.282 p= .243	-0.454 p= .051
decision making	0.152 p= .535	0.043 p= .860	-0.149 p= 543	0.118 p= .631	0.500 p= 029
concentration	0.246 p= 310	0.393 p= .096	-0.098 p= .689	0.042 p= .863	0.522 p= .022
memory	-0.074 p= 763	-0.073 p= 766	-0.351 p= 140	-0.099 p= 687	**0.670 p= 002**
simple tasks	0.373 p= 116	0.357 p= .133	0.044 p= .857	0.203 p= 405	0.510 p= 026
balance	0.584 p= 009	0.441 p= .059	**0.731 p= 000**	0.598 p= .007	-0.099 p= .686
carrying / moving	0.592 p= 008	0.383 p= 106	**0.820 p= 000**	0.452 p= .052	-0.040 p= 871
hand coordination	0.436 p= 062	0.267 p= .270	0.370 p= 119	**0.637 p= 003**	0.111 p= .650
vision	0.086 p= 728	0.125 p= 610	-0.202 p= 408	0.052 p= .831	0.353 p= .138
performance (other)	0.198 p= .417	0.217 p= 372	0.142 p= .562	0.267 p= .268	0.060 p= 807
more mistakes	0 187 p= .442	0.240 p= 322	0.017 p= 944	-0.245 p= 312	0.175 p= .474
longer time	0.428 p= .067	0.411 p= 080	0 492 p= 033	0.113 p= .645	0.101 p= .682
not finished	-0.298 p= 215	-0 301 p= .211	0.072 p= 769	-0.150 p= 540	-0.329 p= .169
abandoned	0.428 p= .067	0.207 p= .395	**0.730 p= 000**	0.384 p= .105	-0.177 p= 469
not attempt	0.067 p= 784	0.025 p= .918	0.349 p= 143	-0.036 p= .884	-0.047 p= .849
completion (other)	0.047 p= 847	0.057 p= .818	0.307 p= .201	-0.068 p= .783	-0.247 p= .307
cold / flu	-0.015 p= 951	0.088 p= .721	-0.234 p= .335	0.039 p= .875	0.510 p= 026
air quality	-0.071 p= 774	-0.059 p= .810	-0.073 p= .768	0.202 p= .407	0.235 p= .332
noise	0.232 p= .340	0.244 p= .314	0.217 p= .373	0.100 p= .683	0.452 p= .052
vibration	0 577 p= 010	0.395 p= 094	**0.800 p= .000**	**0.619 p= 005**	-0.113 p= .645
too bright	0.544 p= 016	0 523 p= 022	0.305 p= .205	0.449 p= 054	0.298 p= .216
too dark	-0.264 p= 274	-0.192 p= .432	-0.066 p= 788	-0.312 p= .193	0.109 p= .655
too hot	0.049 p= 843	0.001 p= .998	0.342 p= 152	-0.050 p= 840	0.057 p= 815
too cold	-0 194 p= .425	-0.111 p= 652	-0.331 p= 166	-0.028 p= .910	0.181 p= 458
other (other)	-0.554 p= 014	-0 572 p= 011	-0.380 p= 109	0.093 p= .705	-0.302 p= 209

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 2.7· Correlation, Ship D, physical tasks (page 3 of 9)

	mental fatigue	physical fatigue	sleepy	headache	apathy	tension
ship Vaccn	0.246 p= .311	0.289 p= .230	0.411 p= .081	**0.729** p= .000	**0.708** p= .001	0.089 p= .718
ship pitch	0.067 p= .785	0.261 p= .281	0.308 p= .200	**0.718** p= .001	0.557 p= .013	0.108 p= .660
ship Laccn	0.183 p= .455	0.142 p= .561	0.368 p= .121	**0.647** p= .003	0.460 p= .048	0.408 p= .083
ship roll	-0.046 p= .852	0.204 p= .403	0.266 p= .271	0.599 p= .007	0.180 p= .460	0.413 p= .079
sleep quality	**0.782** p= 000	**0.661** p= .002	**0.731** p= .000	0.200 p= .412	0.605 p= .006	0.215 p= .376
sleep time	**0.761** p= 000	**0.648** p= .003	**0.669** p= .002	0.174 p= .477	0.551 p= .014	0.191 p= .433
sleep motions	0.487 p= 034	0 483 p= 036	0.532 p= .019	0.490 p= .033	0.534 p= .019	0.280 p= .246
sleep MS	0.503 p= 028	**0.739** p= .000	0.524 p= .021	0.476 p= .039	0.594 p= .007	0.252 p= .297
sleep (other)	0.389 p= .099	0.178 p= .466	0.146 p= .550	-0.541 p= .017	-0.090 p= .714	0.053 p= .828
mental fatigue	1	**0.617** p= 005	**0.667** p= .002	0.036 p= .885	0.573 p= .010	0.317 p= .186
physical fatigue	**0.617** p= 005	1	**0.786** p= .000	0.486 p= .035	**0.627** p= .004	0.326 p= .174
sleepy	**0.667** p= 002	**0.786** p= .000	1	0.432 p= .065	0.569 p= .011	0.452 p= .052
headache	0.036 p= .885	0.486 p= .035	0.432 p= .065	1	**0.622** p= .004	0.261 p= .280
apathy	0 573 p= 010	**0.627** p= 004	0.569 p= .011	**0.622** p= .004	1	0.071 p= .772
tension	0.317 p= .186	0.326 p= .174	0.452 p= .052	0.261 p= .280	0.071 p= .772	1
vomit	0 391 p= 098	0.435 p= .063	0.336 p= .159	0.341 p= .152	0.464 p= .046	0.393 p= .096
nausea	0.134 p= .585	0.278 p= .249	0.281 p= .244	0.504 p= .028	0.429 p= .067	0.245 p= .313
stomach awareness	0 202 p= 406	0.417 p= .076	0.446 p= .056	**0.661** p= .002	0.471 p= .042	0.323 p= .177
symptom (other)	-0.086 p= 727	-0.096 p= .695	-0.304 p= .206	-0.511 p= .025	-0.598 p= .007	0.249 p= .305
MISC	0.277 p= 250	0.339 p= .156	0.399 p= .091	0 533 p= .019	0.433 p= .064	0.225 p= .354
MS medicine	-0.158 p= .519	0.357 p= .133	0.241 p= .320	0.433 p= .064	0.114 p= .642	0.081 p= .740
decision making	0.297 p= 217	0.156 p= .525	0.263 p= .277	-0.231 p= .342	-0.006 p= .981	0.269 p= .266
concentration	0.334 p= 163	0.342 p= .152	0.468 p= .043	-0.028 p= .908	0.076 p= .756	0.280 p= .245
memory	0.170 p= .487	0.008 p= .975	0.069 p= .778	-0.381 p= .107	-0.213 p= .381	0.158 p= .519
simple tasks	0 508 p= 026	0.261 p= .281	0.545 p= .016	-0.013 p= .959	0.233 p= .337	0.337 p= .159
balance	0.356 p= .135	0.576 p= .010	**0.677** p= .001	**0.725** p= .000	**0.638** p= .003	0.305 p= .204
carrying / moving	0 381 p= 107	0 378 p= .110	0.614 p= .005	0.499 p= .030	0.435 p= .063	0.309 p= .198
hand coordination	0.528 p= 020	0.528 p= .020	**0.728** p= .000	0.320 p= .182	0.412 p= .080	0.366 p= .124
vision	0.277 p= 252	0.383 p= .106	0.494 p= .032	0.036 p= .885	0.090 p= 714	0.044 p= .857
performance (other)	0.348 p= 144	0 136 p= 579	0.138 p= .572	0.082 p= .739	0.229 p= .345	-0.317 p= .186
more mistakes	-0.096 p= 697	-0.011 p= .965	-0.047 p= .850	-0.036 p= .883	0.068 p= .783	-0.208 p= .392
longer time	0 284 p= 238	0 339 p= .156	0.410 p= .082	0.456 p= .050	0.453 p= .052	0.333 p= .163
not finished	-0.257 p= 288	-0.218 p= .369	-0.154 p= .530	0.273 p= .258	-0.203 p= .405	0.411 p= .081
abandoned	0.135 p= 581	0.345 p= .149	0.478 p= .038	**0.683** p= .001	0.516 p= .024	0.354 p= .138
not attempt	-0.071 p= 774	0.017 p= .946	0.057 p= .816	0.439 p= .060	0 263 p= .277	0.109 p= .656
completion (other)	0.052 p= 833	0.095 p= .700	0.190 p= .437	0.379 p= .110	0.141 p= .566	0.385 p= .103
cold / flu	-0.042 p= .863	0.168 p= .492	-0.056 p= .820	-0.350 p= .142	-0.321 p= .181	0.156 p= .522
air quality	-0.117 p= 634	0 091 p= .712	-0 153 p= .532	-0.061 p= .804	-0 101 p= .681	0.073 p= .767
noise	0.226 p= .351	0.012 p= .961	-0.004 p= .986	-0.174 p= .477	-0 090 p= .714	0.305 p= .204
vibration	0.452 p= 052	0.407 p= .084	0.477 p= .039	0.454 p= .051	0.524 p= .021	0.338 p= .156
too bright	0.261 p= 281	**0.643** p= 003	0.472 p= .041	0.380 p= .109	0.594 p= .007	-0.055 p= .823
too dark	-0 132 p= 590	-0.254 p= 294	-0.345 p= .148	-0.224 p= .356	-0.444 p= .057	-0.022 p= .930
too hot	0.207 p= 394	-0.015 p= 953	0.071 p= .774	0.230 p= .342	0.070 p= .777	0.352 p= .139
too cold	-0.323 p= .178	-0.191 p= 433	-0.214 p= .379	-0.319 p= .183	-0.509 p= .026	0.105 p= .666
other (other)	-0.490 p= .033	-0.176 p= 471	-0.292 p= .226	0.164 p= .501	-0.081 p= .743	-0.161 p= .511

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), 'shade' = not significant ($p > 0.05$)

Table D.2 7. Correlation, Ship D, physical tasks

(page 4 of 9)

	vomit	nausea	stomach awareness	symptom (other)	MISC	MS medicine
ship Vaccn	0.585 p= .009	0.554 p= .014	**0.680** p= .001	-0.599 p= .007	**0.626** p= .004	0.273 p= .258
ship pitch	**0.653** p= .002	0.600 p= .007	**0.721** p= .000	-0.511 p= .025	**0.644** p= .003	0.455 p= .051
ship Laccn	0.560 p= .013	0.447 p= .055	**0.695** p= .001	-0.535 p= .018	0.573 p= .010	0.111 p= .650
ship roll	0.435 p= .062	0.424 p= .071	**0.625** p= .004	-0.326 p= .173	0.502 p= .029	0.342 p= .151
sleep quality	0.363 p= .126	0.212 p= .384	0.383 p= .106	-0.380 p= .108	0.488 p= .034	-0.221 p= .362
sleep time	0.173 p= .480	0.057 p= .817	0.211 p= .386	-0.262 p= .278	0.283 p= .240	-0.179 p= .463
sleep motions	0.578 p= .010	0.545 p= .016	**0.716** p= .001	-0.481 p= .007	**0.813** p= .000	0.022 p= .930
sleep MS	0.498 p= .030	0.212 p= .384	0.370 p= .119	-0.189 p= .438	0.329 p= .169	0.282 p= .243
sleep (other)	0.001 p= .997	-0.005 p= .985	-0.128 p= .601	0.359 p= .131	-0.061 p= .804	-0.454 p= .051
mental fatigue	0.391 p= .098	0.134 p= .585	0.202 p= .406	-0.086 p= .727	0.277 p= .250	-0.158 p= .519
physical fatigue	0.435 p= .063	0.278 p= .249	0.417 p= .076	-0.098 p= .695	0.339 p= .156	0.357 p= .133
sleepy	0.336 p= .159	0.281 p= .244	0.446 p= .056	-0.304 p= .206	0.399 p= .091	0.241 p= .320
headache	0.341 p= .152	0.504 p= .028	**0.661** p= .002	-0.511 p= .025	0.533 p= .019	0.433 p= .064
apathy	0.464 p= .046	0.429 p= .067	0.471 p= .042	-0.598 p= .007	0.433 p= .064	0.114 p= .642
tension	0.393 p= .096	0.245 p= .313	0.323 p= .177	0.249 p= .305	0.225 p= .354	0.081 p= .740
vomit	1	0.469 p= .043	0.571 p= .011	0.005 p= .983	0.522 p= .022	0.247 p= .308
nausea	0.469 p= .043	1	**0.866** p= .000	-0.185 p= .449	**0.866** p= .000	0.169 p= .489
stomach awareness	0.571 p= .011	**0.866** p= .000	1	-0.262 p= .279	**0.862** p= .000	0.202 p= .406
symptom (other)	0.005 p= .983	-0.185 p= .449	-0.262 p= .279	1	-0.346 p= .147	-0.067 p= .785
MISC	0.522 p= .022	**0.866** p= .000	**0.862** p= .000	-0.346 p= .147	1	0.083 p= .736
MS medicine	0.247 p= .308	0.169 p= .489	0.202 p= .406	-0.067 p= .785	0.083 p= .736	1
decision making	0.039 p= .873	0.140 p= .567	0.065 p= .792	0.402 p= .088	-0.038 p= .879	-0.237 p= .328
concentration	-0.224 p= .357	0.266 p= .272	0.172 p= .482	0.227 p= .350	0.127 p= .605	-0.094 p= .702
memory	-0.160 p= .514	0.010 p= .968	-0.087 p= .724	0.445 p= .056	-0.202 p= .407	-0.226 p= .352
simple tasks	0.147 p= .549	0.057 p= .818	0.094 p= .701	0.035 p= .886	0.077 p= .753	-0.203 p= .405
balance	0.453 p= .051	**0.687** p= .001	**0.790** p= .000	-0.504 p= .028	**0.782** p= .000	0.231 p= .342
carrying / moving	0.459 p= .048	0.559 p= .013	**0.678** p= .001	-0.558 p= .013	**0.753** p= .000	0.159 p= .515
hand coordination	0.283 p= .241	0.219 p= .369	0.324 p= .175	-0.205 p= .399	0.252 p= .298	0.317 p= .186
vision	-0.188 p= .440	0.008 p= .974	0.011 p= .963	0.023 p= .927	-0.117 p= .632	0.265 p= .274
performance (other)	0.013 p= .959	0.042 p= .866	0.084 p= .734	-0.215 p= .378	0.129 p= .597	0.095 p= .700
more mistakes	-0.195 p= .424	0.102 p= .679	0.119 p= .627	-0.178 p= .465	0.078 p= .750	-0.308 p= .199
longer time	0.222 p= .362	**0.740** p= .000	**0.784** p= .000	-0.225 p= .355	**0.705** p= .001	-0.103 p= .674
not finished	0.267 p= .269	0.304 p= .206	0.396 p= .093	0.142 p= .562	0.252 p= .298	0.175 p= .475
abandoned	0.456 p= .050	**0.794** p= .000	**0.918** p= .000	-0.451 p= .052	**0.822** p= .000	0.124 p= .614
not attempt	0.196 p= .421	**0.740** p= .000	**0.710** p= .001	-0.271 p= .262	0.584 p= .009	-0.086 p= .726
completion (other)	0.270 p= .263	**0.653** p= .002	**0.750** p= .000	0.029 p= .907	0.544 p= .016	0.186 p= .446
cold / flu	-0.229 p= .345	0.021 p= .931	-0.068 p= .783	0.592 p= .008	-0.140 p= .569	-0.115 p= .639
air quality	-0.264 p= .275	0.255 p= .293	0.145 p= .553	0.271 p= .262	0.017 p= .946	-0.063 p= .798
noise	-0.043 p= .862	0.232 p= .339	0.293 p= .224	0.225 p= .354	0.181 p= .458	-0.437 p= .061
vibration	0.539 p= .017	0.474 p= .040	**0.728** p= .000	-0.353 p= .138	0.579 p= .009	0.066 p= .789
too bright	0.169 p= .488	0.197 p= .419	0.348 p= .144	-0.372 p= .117	0.193 p= .428	-0.011 p= .963
too dark	0.016 p= .949	0.223 p= .359	0.094 p= .701	0.449 p= .054	0.222 p= .360	-0.007 p= .977
too hot	0.385 p= .103	**0.661** p= .002	**0.674** p= .002	0.188 p= .441	0.611 p= .005	-0.183 p= .453
too cold	-0.546 p= .016	-0.241 p= .320	-0.261 p= .281	0.376 p= .113	-0.324 p= .177	-0.162 p= .507
other (other)	-0.184 p= .452	-0.080 p= .745	-0.194 p= .427	-0.077 p= .753	-0.333 p= .163	0.448 p= .054

Legend: **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.2.7: Correlation, Ship D, physical tasks (page 5 of 9)

	decision making	concentration	memory	simple tasks
ship Vaccn	-0.011 p= .965	-0.058 p= .814	-0.186 p= .445	0.308 p= .200
ship pitch	-0.196 p= .422	-0.178 p= .466	-0.290 p= .228	0.114 p= .642
ship Laccn	-0.150 p= .539	-0.260 p= .282	-0.283 p= .240	0.092 p= .708
ship roll	-0.369 p= .120	-0.321 p= .181	-0.314 p= .190	-0.212 p= .383
sleep quality	0.152 p= .535	0.246 p= .310	-0.074 p= .763	0.373 p= .116
sleep time	0.043 p= .860	0.393 p= .096	-0.073 p= .766	0.357 p= .133
sleep motions	-0.149 p= .543	-0.098 p= .689	-0.351 p= .140	0.044 p= .857
sleep MS	0.118 p= .631	0.042 p= .863	-0.099 p= .687	0.203 p= .405
sleep (other)	0.500 p= .029	0.522 p= .022	**0.670 p= .002**	0.510 p= .026
mental fatigue	0.297 p= .217	0.334 p= .163	0.170 p= .487	0.508 p= .026
physical fatigue	0.156 p= .525	0.342 p= .152	0.008 p= .975	0.261 p= .281
sleepy	0.263 p= .277	0.466 p= .043	0.069 p= .778	0.545 p= .016
headache	-0.231 p= .342	-0.028 p= .908	-0.381 p= .107	-0.013 p= .959
apathy	-0.006 p= .981	0.076 p= .758	-0.213 p= .381	0.233 p= .337
tension	0.269 p= .266	0.280 p= .245	0.158 p= .519	0.337 p= .159
vomit	0.039 p= .873	-0.224 p= .357	-0.160 p= .514	0.147 p= .549
nausea	0.140 p= .567	0.266 p= .272	0.010 p= .968	0.057 p= .818
stomach awareness	0.065 p= .792	0.172 p= .482	-0.087 p= .724	0.094 p= .701
symptom (other)	0.402 p= .088	0.227 p= .350	0.445 p= .056	0.035 p= .886
MISC	-0.038 p= .879	0.127 p= .605	-0.202 p= .407	0.077 p= .753
MS medicine	-0.237 p= .328	-0.094 p= .702	-0.226 p= .352	-0.203 p= .405
decision making	1	**0.673 p= .002**	**0.827 p= .000**	**0.693 p= .001**
concentration	**0.673 p= .002**	1	**0.627 p= .004**	**0.661 p= .002**
memory	**0.827 p= .000**	**0.627 p= .004**	1	**0.626 p= .004**
simple tasks	**0.693 p= .001**	**0.661 p= .002**	**0.626 p= .004**	1
balance	0.170 p= .486	0.311 p= .195	-0.049 p= .841	0.346 p= .147
carrying / moving	-0.051 p= .836	0.075 p= .761	-0.151 p= .536	0.255 p= .292
hand coordination	0.479 p= .038	0.441 p= .058	0.374 p= .114	**0.710 p= .001**
vision	0.547 p= .015	**0.617 p= .005**	**0.629 p= .004**	0.550 p= .015
performance (other)	0.212 p= .384	0.239 p= .324	0.211 p= .386	0.363 p= .126
more mistakes	0.128 p= .600	0.193 p= .428	0.132 p= .591	-0.064 p= .793
longer time	0.174 p= .477	0.459 p= .048	0.115 p= .639	0.218 p= .371
not finished	0.070 p= .775	-0.130 p= .597	0.141 p= .566	-0.072 p= .769
abandoned	0.026 p= .915	0.144 p= .556	-0.126 p= .606	0.152 p= .534
not attempt	0.083 p= .734	0.140 p= .567	0.059 p= .811	-0.073 p= .766
completion (other)	0.080 p= .744	0.211 p= .385	-0.010 p= .969	-0.077 p= .756
cold / flu	0.433 p= .064	0.535 p= .018	0.553 p= .014	0.081 p= .740
air quality	0.365 p= .124	0.431 p= .066	0.476 p= .039	-0.042 p= .863
noise	0.272 p= .259	0.400 p= .090	0.439 p= .060	0.203 p= .404
vibration	-0.068 p= .783	-0.022 p= .928	-0.159 p= .516	0.125 p= .611
too bright	0.154 p= .529	0.249 p= .305	0.169 p= .489	0.241 p= .321
too dark	-0.034 p= .889	0.128 p= .601	-0.038 p= .878	-0.153 p= .533
too hot	0.189 p= .439	0.155 p= .526	0.190 p= .435	0.128 p= .602
too cold	0.285 p= .238	0.392 p= .091	0.381 p= .107	0.069 p= .778
other (other)	0.092 p= .708	-0.108 p= .665	0.193 p= .429	-0.084 p= .734

Legend: **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), *italic* = not significant ($p > 0.05$)

Table D.2.7· Correlation, Ship D, physical tasks (page 6 of 9)

	balance	carrying / moving	hand coordination	vision	performance (other)
ship Vaccn	**0.756 p= 000**	**0.636 p= 003**	0.499 p= .029	0.061 p= .803	0.396 p= .094
ship pitch	**0.714 p= 001**	**0.686 p= .001**	0.405 p= .086	-0.032 p= .895	0.249 p= 304
ship Laccn	**0.665 p= .002**	**0.733 p= .000**	0.346 p= .146	-0.187 p= .444	-0.050 p= .840
ship roll	0.518 p= 024	**0.688 p= .001**	0.197 p= .418	-0.168 p= 496	-0.239 p= 325
sleep quality	0.584 p= .009	0.592 p= .008	0.436 p= .062	0.086 p= .728	0.198 p= 417
sleep time	0.441 p= 059	0.383 p= .106	0.267 p= 270	0.125 p= .610	0.217 p= 372
sleep motions	**0.731 p= .000**	**0.830 p= .000**	0.370 p= .119	-0.202 p= .406	0.142 p= .562
sleep MS	0.598 p= 007	0.452 p= .052	**0.637 p= .003**	0.052 p= .831	0.267 p= .268
sleep (other)	-0.099 p= 686	-0.040 p= .871	0.111 p= .650	0.353 p= .138	0.060 p= .807
mental fatigue	0.356 p= 135	0.381 p= .107	0.528 p= .020	0.277 p= .252	0.348 p= 144
physical fatigue	0.576 p= 010	0.378 p= .110	0.528 p= 020	0.383 p= .106	0.136 p= 579
sleepy	**0.677 p= 001**	0.614 p= 005	**0.728 p= 000**	0.494 p= .032	0.138 p= .572
headache	**0.725 p= 000**	0.499 p= .030	0.320 p= .182	0.036 p= .885	0.082 p= 739
apathy	**0.638 p= 003**	0.435 p= .063	0.412 p= 080	0.090 p= 714	0.229 p= .345
tension	0.305 p= .204	0.309 p= .198	0.366 p= .124	0.044 p= 857	-0.317 p= .186
vomit	0.453 p= 051	0.459 p= 048	0.283 p= .241	-0.188 p= 440	0.013 p= 959
nausea	**0.687 p= 001**	0.559 p= 013	0.219 p= .368	0.008 p= .974	0.042 p= .866
stomach awareness	**0.790 p= 000**	**0.678 p= .001**	0.324 p= 175	0.011 p= .963	0.084 p= 734
symptom (other)	-0.504 p= 028	-0.556 p= 013	-0.205 p= .399	0.023 p= 927	-0.215 p= .378
MISC	**0.762 p= 000**	**0.753 p= .000**	0.252 p= .298	-0.117 p= .632	0.129 p= 597
MS medicine	0.231 p= .342	0.159 p= .515	0.317 p= 186	0.265 p= 274	0.095 p= 700
decision making	0.170 p= 486	-0.051 p= .836	0.479 p= 038	0.547 p= 015	0.212 p= .384
concentration	0.311 p= 195	0.075 p= .761	0.441 p= .059	**0.617 p= .005**	0.239 p= .324
memory	-0.049 p= 841	-0.151 p= .536	0.374 p= .114	**0.626 p= 004**	0.211 p= 386
simple tasks	0.346 p= 147	0.255 p= .292	**0.710 p= 001**	0.550 p= 015	0.363 p= .126
balance	1	**0.845 p= .000**	0.614 p= .005	0.208 p= .392	0.333 p= .164
carrying / moving	**0.845 p= 000**	1	0.559 p= 013	0.102 p= .676	0.242 p= 318
hand coordination	0.614 p= 005	0.559 p= 013	1	0.606 p= 006	0.453 p= 051
vision	0.208 p= 392	0.102 p= .676	0.606 p= 006	1	0.421 p= 073
performance (other)	0.333 p= 164	0.242 p= .318	0.453 p= .051	0.421 p= 073	1
more mistakes	0.111 p= .651	-0.108 p= .666	-0.316 p= 188	-0.001 p= 995	0.103 p= 676
longer time	0.582 p= 009	0.398 p= .092	0.168 p= .492	0.055 p= .823	-0.026 p= 915
not finished	0.193 p= 428	0.151 p= 537	-0.031 p= 900	-0.133 p= .587	-0.042 p= 863
abandoned	**0.800 p= 000**	**0.718 p= 001**	0.376 p= 112	-0.060 p= .807	-0.078 p= 750
not attempt	0.597 p= .007	0.496 p= .031	-0.025 p= 920	-0.013 p= 958	0.077 p= 755
completion (other)	0.364 p= .126	0.273 p= .258	0.039 p= 875	-0.011 p= .964	-0.117 p= 632
cold / flu	-0.125 p= .610	-0.317 p= .186	-0.054 p= 826	0.103 p= .675	-0.172 p= 483
air quality	0.120 p= .625	-0.108 p= .659	0.066 p= .787	0.082 p= .738	0.016 p= .948
noise	0.140 p= 567	0.147 p= 548	0.085 p= .730	-0.084 p= .732	0.042 p= .865
vibration	**0.646 p= .003**	**0.691 p= 001**	0.459 p= .048	-0.168 p= 492	0.117 p= .632
too bright	0.512 p= .025	0.270 p= .264	0.270 p= 264	0.278 p= .250	0.095 p= .698
too dark	-0.149 p= .542	-0.051 p= .837	-0.281 p= 244	-0.077 p= .755	0.193 p= .428
too hot	0.318 p= .185	0.330 p= .168	0.053 p= .830	-0.092 p= .707	-0.008 p= 975
too cold	-0 176 p= .471	-0.247 p= .308	0.003 p= 990	0.007 p= .978	-0.184 p= 450
other (other)	0 030 p= 903	-0.129 p= 599	0.195 p= .424	0.238 p= .327	0.231 p= .341

Legend bold = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D.2.7: Correlation, Ship D, physical tasks (page 7 of 9)

	more mistakes	longer time	not finished	abandoned	not attempt	completion (other)
ship Vaccn	-0.034 p= .890	0.439 p= .060	0.285 p= .238	**0.695** p= .001	0.423 p= .071	0.345 p= 149
ship pitch	-0.185 p= 449	0.349 p= 143	0.318 p= .185	**0.712** p= 001	0.461 p= 047	0.376 p= 113
ship Laccn	-0.036 p= .883	0.427 p= 068	0.520 p= 023	**0.751** p= 000	0.525 p= 021	0.483 p= 036
ship roll	-0.263 p= .277	0.273 p= .258	0.469 p= .043	**0.656** p= .002	0.495 p= 031	0.432 p= .065
sleep quality	0.187 p= .442	0.428 p= 067	-0.298 p= .215	0.428 p= .067	0.067 p= .784	0.047 p= .847
sleep time	0.240 p= .322	0.411 p= 080	-0.301 p= 211	0.207 p= .395	0.025 p= .918	0.057 p= .816
sleep motions	0.017 p= .944	0 492 p= 033	0.072 p= .769	**0.730** p= .000	0.349 p= .143	0.307 p= .201
sleep MS	-0.245 p= 312	0.113 p= .645	-0.150 p= .540	0.384 p= .105	-0.036 p= 884	-0.068 p= .783
sleep (other)	0.175 p= 474	0.101 p= .682	-0.329 p= .169	-0.177 p= .469	-0.047 p= .849	-0.247 p= .307
mental fatigue	-0.096 p= .697	0.284 p= .238	-0.257 p= .288	0.135 p= .581	-0.071 p= 774	0.052 p= .833
physical fatigue	-0.011 p= .965	0.339 p= .156	-0.218 p= .369	0.345 p= .149	0.017 p= .946	0.095 p= .700
sleepy	-0 047 p= 850	0.410 p= 082	-0.154 p= 530	0.478 p= 038	0.057 p= .818	0.190 p= 437
headache	-0.036 p= 883	0.456 p= 050	0.273 p= .258	**0.683** p= 001	0.439 p= 060	0.379 p= .110
apathy	0.068 p= .783	0.453 p= 052	-0.203 p= .405	0.516 p= .024	0.263 p= 277	0.141 p= .566
tension	-0.208 p= .392	0.333 p= .163	0.411 p= .081	0.354 p= .138	0.109 p= .656	0.385 p= .103
vomit	-0.195 p= .424	0.222 p= .362	0.267 p= 269	0.456 p= 050	0.196 p= .421	0.270 p= .263
nausea	0.102 p= 679	**0.740** p= 000	0.304 p= .206	**0.794** p= .000	**0.740** p= 000	**0.653** p= .002
stomach awareness	0.119 p= .627	**0.784** p= 000	0.396 p= 093	**0.918** p= 000	**0.710** p= 001	**0.750** p= .000
symptom (other)	-0.178 p= .465	-0.225 p= 355	0.142 p= 562	-0.451 p= 052	-0.271 p= .262	0.029 p= 907
MISC	0 078 p= 750	**0.705** p= .001	0.252 p= .299	**0.822** p= 000	0.584 p= 009	0.544 p= 016
MS medicine	-0 308 p= .199	-0.103 p= .674	0.175 p= 475	0.124 p= .614	-0.086 p= .728	0.186 p= 446
decision making	0 128 p= 603	0.174 p= 477	0.070 p= .775	0.026 p= .915	0.083 p= .734	0.080 p= .744
concentration	0.193 p= 428	0.459 p= 048	-0.130 p= .597	0.144 p= .555	0.140 p= .567	0.211 p= .385
memory	0.132 p= .591	0 115 p= 639	0.141 p= 566	-0.126 p= 606	0.059 p= 811	-0.010 p= .969
simple tasks	-0.064 p= 793	0.218 p= .371	-0.072 p= .768	0.152 p= .534	-0.073 p= .765	-0.077 p= .756
balance	0.111 p= 651	0.582 p= 009	0.193 p= .428	**0.800** p= 000	0.597 p= .007	0.364 p= .126
carrying / moving	-0.106 p= .666	0 398 p= .092	0.151 p= 537	**0.718** p= .001	0.496 p= 031	0.273 p= 259
hand coordination	-0.316 p= .188	0.168 p= 492	-0.031 p= 900	0.376 p= 112	-0.025 p= .920	0.039 p= .875
vision	-0.001 p= 995	0.055 p= 823	-0.133 p= .587	-0.060 p= .807	-0 013 p= .959	-0.011 p= .964
performance (other)	0.103 p= .676	-0 026 p= 915	-0.042 p= .863	-0.078 p= 750	0.077 p= 755	-0.117 p= 832
more mistakes	1	0.425 p= 069	0 177 p= .467	0.093 p= 706	0.366 p= .123	0.152 p= 534
longer time	0.425 p= .069	1	0.304 p= 206	**0.787** p= 000	0.599 p= 007	**0.753** p= .000
not finished	0.177 p= 467	0.304 p= .206	1	0.317 p= .186	0.467 p= 044	0.578 p= 009
abandoned	0.093 p= 706	**0.787** p= 000	0.317 p= 186	1	**0.628** p= 004	**0.643** p= 003
not attempt	0.366 p= 123	0 599 p= 007	0.467 p= 044	**0.628** p= 004	1	0.581 p= .009
completion (other)	0.152 p= .534	**0.753** p= 000	0.578 p= 009	**0.643** p= .003	0.581 p= 009	1
cold / flu	0.334 p= .163	0.201 p= .408	0.041 p= 869	-0.103 p= .675	-0.017 p= .945	0.049 p= .841
air quality	0.285 p= 237	0.303 p= 207	0.143 p= .559	0.144 p= .558	0.325 p= .174	0.182 p= 455
noise	0.262 p= 279	0.488 p= 034	0.207 p= .394	0.275 p= .255	0.360 p= .130	0.319 p= .183
vibration	-0 074 p= 764	0 521 p= 022	0.181 p= .458	**0.742** p= .000	0.398 p= .091	0 460 p= .047
too bright	0.485 p= 035	0.430 p= .066	-0.147 p= 549	0.403 p= .087	0.288 p= .232	-0.021 p= .932
too dark	-0.141 p= .564	-0.019 p= .939	0.083 p= .734	-0.149 p= .543	0.116 p= .636	0.234 p= 335
too hot	-0.065 p= .790	0.600 p= 007	0.550 p= .015	0.525 p= 021	0.611 p= .005	**0.704** p= .001
too cold	0.039 p= .875	-0.065 p= 790	-0.011 p= .966	-0.132 p= 589	-0.112 p= 649	-0.088 p= .720
other (other)	-0.080 p= 746	-0.380 p= 109	0.211 p= .386	-0.154 p= .528	0.082 p= .738	-0.250 p= .303

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 2.7. Correlation, Ship D, physical tasks (page 8 of 9)

	cold / flu	air quality	noise	vibration
ship Vaccn	-0.539 p= .017	-0.256 p= .291	-0.152 p= .533	0.559 p= .013
ship pitch	-0.499 p= .029	-0.218 p= .370	-0.144 p= .556	0.582 p= .009
ship Laccn	-0.493 p= .032	-0.209 p= .391	0.110 p= .653	**0.756** p= .000
ship roll	-0.278 p= .250	-0.044 p= .857	0.111 p= .652	**0.634** p= .004
sleep quality	-0.015 p= .951	-0.071 p= .774	0.232 p= .340	0.577 p= .010
sleep time	0.088 p= .721	-0.059 p= .810	0.244 p= .314	0.395 p= .094
sleep motions	-0.234 p= .335	-0.073 p= .768	0.217 p= .373	**0.800** p= .000
sleep MS	0.039 p= .875	0.202 p= .407	0.100 p= .683	**0.619** p= .005
sleep (other)	0.510 p= .026	0.235 p= .332	0.452 p= .052	-0.113 p= .645
mental fatigue	-0.042 p= .863	-0.117 p= .634	0.226 p= .351	0.452 p= .052
physical fatigue	0.168 p= .492	0.091 p= .712	0.012 p= .961	0.407 p= .084
sleepy	-0.056 p= .820	-0.153 p= .532	-0.004 p= .986	0.477 p= .039
headache	-0.350 p= .142	-0.061 p= .804	-0.174 p= .477	0.454 p= .051
apathy	-0.321 p= .181	-0.101 p= .681	-0.090 p= .714	0.524 p= .021
tension	0.156 p= .522	0.073 p= .767	0.305 p= .204	0.338 p= .158
vomit	-0.229 p= .345	-0.264 p= .275	-0.043 p= .862	0.539 p= .017
nausea	0.021 p= .931	0.255 p= .293	0.232 p= .338	0.474 p= .040
stomach awareness	-0.068 p= .783	0.145 p= .553	0.293 p= .224	**0.728** p= .000
symptom (other)	0.592 p= .008	0.271 p= .262	0.225 p= .354	-0.353 p= .138
MISC	-0.140 p= .569	0.017 p= .946	0.181 p= .459	0.579 p= .009
MS medicine	-0.115 p= .639	-0.063 p= .798	-0.437 p= .061	0.066 p= .789
decision making	0.433 p= .064	0.365 p= .124	0.272 p= .259	-0.068 p= .783
concentration	0.535 p= .018	0.431 p= .066	0.400 p= .090	-0.022 p= .928
memory	0.553 p= .014	0.476 p= .039	0.439 p= .060	-0.159 p= .516
simple tasks	0.081 p= .740	-0.042 p= .863	0.203 p= .404	0.125 p= .611
balance	-0.125 p= .610	0.120 p= .625	0.140 p= .567	**0.646** p= .003
carrying / moving	-0.317 p= .186	-0.108 p= .659	0.147 p= .546	**0.691** p= .001
hand coordination	-0.054 p= .826	0.066 p= .787	0.085 p= .730	0.459 p= .048
vision	0.103 p= .675	0.082 p= .738	-0.084 p= .732	-0.168 p= .492
performance (other)	-0.172 p= .483	0.016 p= .948	0.042 p= .865	0.117 p= .632
more mistakes	0.334 p= .163	0.285 p= .237	0.262 p= .279	-0.074 p= .764
longer time	0.201 p= .408	0.303 p= .207	0.488 p= .034	0.521 p= .022
not finished	0.041 p= .869	0.143 p= .559	0.207 p= .394	0.181 p= .458
abandoned	-0.103 p= .675	0.144 p= .558	0.275 p= .255	**0.742** p= .000
not attempt	-0.017 p= .945	0.325 p= .174	0.360 p= .130	0.398 p= .091
completion (other)	0.049 p= .841	0.182 p= .455	0.319 p= .183	0.460 p= .047
cold / flu	1	**0.799** p= .000	0.599 p= .007	-0.090 p= .715
air quality	**0.799** p= .000	1	**0.681** p= .001	0.146 p= .550
noise	0.599 p= .007	**0.681** p= .001	1	0.488 p= .034
vibration	-0.090 p= .715	0.146 p= .550	0.488 p= .034	1
too bright	0.249 p= .305	0.287 p= .234	0.201 p= .409	0.345 p= .148
too dark	0.033 p= .893	-0.016 p= .947	0.095 p= .700	-0.224 p= .357
too hot	0.005 p= .982	0.111 p= .651	0.439 p= .060	0.438 p= .061
too cold	**0.716** p= .001	**0.705** p= .001	0.506 p= .027	-0.119 p= .627
other (other)	0.006 p= .980	0.326 p= .174	-0.213 p= .382	-0.230 p= .344

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), **shade** = not significant ($p > 0.05$)

Table D.2 7· Correlation, Ship D, physical tasks (page 9 of 9)

	too bright	too dark	too hot	too cold	other (other)
ship Vaccn	0.315 p= .189	-0.192 p= .431	0.330 p= .167	-0.530 p= 020	0.100 p= .683
ship pitch	0.243 p= .317	-0.042 p= .865	0.329 p= .168	-0.458 p= 048	0.162 p= 508
ship Laccn	0.174 p= .476	-0.251 p= .300	0.453 p= .052	-0.373 p= .116	-0.042 p= .864
ship roll	0 129 p= .599	-0.123 p= .617	0.414 p= .078	-0.162 p= .506	0.030 p= 903
sleep quality	0.544 p= .016	-0.264 p= .274	0.049 p= .843	-0.194 p= .425	-0.554 p= 014
sleep time	0 523 p= .022	-0.192 p= .432	0.001 p= .998	-0.111 p= .652	-0 572 p= 011
sleep motions	0.305 p= 205	-0.066 p= .788	0.342 p= .152	-0.331 p= 166	-0.380 p= 109
sleep MS	0 449 p= .054	-0.312 p= .193	-0.050 p= 840	-0.028 p= .910	0.093 p= .705
sleep (other)	0.298 p= .216	0.109 p= .655	0.057 p= .815	0 181 p= .458	-0.302 p= .209
mental fatigue	0.261 p= .281	-0.132 p= .590	0.207 p= .394	-0.323 p= .178	-0.490 p= .033
physical fatigue	**0.643** p= 003	-0.254 p= .294	-0.015 p= .953	-0.191 p= 433	-0.176 p= .471
sleepy	0 472 p= 041	-0.345 p= .148	0.071 p= 774	-0.214 p= 379	-0.292 p= .226
headache	0.380 p= 109	-0.224 p= .356	0.230 p= .342	-0.319 p= .183	0.164 p= .501
apathy	0 594 p= 007	-0.444 p= .057	0.070 p= .777	-0.509 p= 026	-0.081 p= 743
tension	-0.055 p= .823	-0.022 p= .930	0.352 p= .139	0.105 p= .668	-0.161 p= .511
vomit	0.169 p= 488	0.016 p= .949	0.385 p= .103	-0.546 p= 016	-0.184 p= .452
nausea	0.197 p= 419	0.223 p= .359	**0.661** p= 002	-0.241 p= .320	-0.080 p= .745
stomach awareness	0.348 p= 144	0.094 p= .701	**0.674** p= 002	-0.261 p= .281	-0.194 p= .427
symptom (other)	-0.372 p= .117	0.449 p= .054	0.188 p= .441	0.376 p= .113	-0.077 p= .753
MISC	0.193 p= 428	0.222 p= 360	0 611 p= .005	-0.324 p= .177	-0.333 p= 163
MS medicine	-0.011 p= .963	-0.007 p= .977	-0.183 p= .453	-0.162 p= .507	0.449 p= .054
decision making	0.154 p= .528	-0.034 p= 889	0.189 p= .439	0.285 p= .238	0.092 p= 708
concentration	0.249 p= .305	0.128 p= .601	0.155 p= .526	0.399 p= .091	-0.106 p= .665
memory	0.169 p= .489	-0.038 p= 876	0.190 p= .435	0.381 p= .107	0.193 p= 429
simple tasks	0.241 p= 321	-0.153 p= .533	0.128 p= .602	0.069 p= .778	-0.084 p= .734
balance	0.512 p= 025	-0.149 p= .542	0.318 p= .185	-0.176 p= 471	0.030 p= 903
carrying / moving	0.270 p= 264	-0.051 p= 837	0.330 p= 168	-0.247 p= 308	-0.129 p= 599
hand coordination	0.270 p= 264	-0.281 p= 244	0.053 p= 830	0.003 p= .990	0.195 p= 424
vision	0.278 p= 250	-0.077 p= .755	-0.092 p= 707	0.007 p= 978	0.238 p= .327
performance (other)	0.095 p= 698	0.193 p= .428	-0.008 p= 975	-0.184 p= 450	0.231 p= 341
more mistakes	0.485 p= 035	-0.141 p= .564	-0.065 p= 790	0.039 p= .875	-0.080 p= .746
longer time	0.430 p= .066	-0.019 p= .939	0.600 p= .007	-0.065 p= .790	-0.380 p= .109
not finished	-0.147 p= 549	0.083 p= .734	0 550 p= .015	-0.011 p= .966	0 211 p= .386
abandoned	0.403 p= .087	-0.149 p= 543	0.525 p= 021	-0.132 p= .589	-0.154 p= .528
not attempt	0.288 p= 232	0.116 p= .636	0.611 p= .005	-0.112 p= .649	0.082 p= .738
completion (other)	-0.021 p= 932	0.234 p= 335	**0.704** p= 001	-0.088 p= .720	-0.250 p= .303
cold / flu	0 249 p= .305	0.033 p= .893	0 005 p= .982	**0.716** p= 001	0.006 p= .980
air quality	0.287 p= .234	-0.016 p= .947	0.111 p= 651	**0.705** p= 001	0.326 p= 174
noise	0 201 p= .409	0.095 p= .700	0.439 p= .060	0.506 p= 027	-0.213 p= .382
vibration	0 345 p= .148	-0.224 p= .357	0.438 p= 061	-0.119 p= 627	-0.230 p= .344
too bright	1	-0.564 p= .012	-0.123 p= 616	-0.022 p= .929	0.014 p= .956
too dark	-0.564 p= 012	1	0.331 p= .166	0.011 p= .965	-0.193 p= .429
too hot	-0.123 p= .616	0.331 p= .166	1	-0.190 p= 435	-0.350 p= .142
too cold	-0.022 p= 929	0.011 p= .965	-0.190 p= .435	1	0.224 p= .356
other (other)	0.014 p= .956	-0.193 p= .429	-0.350 p= .142	0.224 p= .356	1

Legend. **bold** = high significance ($p < 0\ 005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D.3.1. Correlation, Ship D, all subjects, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= 000	**0.879** p= .000	**0.676** p= .001
ship pitch	**0.942** p= 000	1	**0.848** p= 000	**0.799** p= 000
ship Laccn	**0.879** p= .000	**0.848** p= 000	1	**0.846** p= 000
ship roll	**0.676** p= 001	**0.799** p= .000	**0.846** p= .000	1
sleep quality	0.543 p= 016	0.549 p= 015	0.441 p= .059	0.391 p= .097
sleep time	0 260 p= 283	0.256 p= 291	0.252 p= .297	0.196 p= .421
sleep motions	**0.789** p= 000	**0.740** p= 000	**0.635** p= 003	0.481 p= .037
sleep MS	**0.643** p= 003	**0.640** p= 003	0.603 p= 006	0.513 p= .025
sleep (other)	**-0.646** p= .003	-0.515 p= .024	**-0.633** p= 004	-0.409 p= .082
mental fatigue	0.186 p= 445	0.203 p= .404	-0.029 p= .906	-0.066 p= .789
physical fatigue	0.275 p= 255	0.301 p= .211	0.160 p= .514	0.114 p= .643
sleepy	0.158 p= 518	0.228 p= .348	-0.040 p= .872	0.035 p= .888
headache	0 501 p= 029	0.369 p= .120	0.376 p= .113	0.220 p= .366
apathy	**0.706** p= 001	0 593 p= 007	0 589 p= .008	0.363 p= .127
tension	-0.118 p= 630	-0.134 p= .583	-0.326 p= .173	-0.237 p= .329
vomit	**0.728** p= 000	**0.710** p= .001	**0.647** p= 003	0.439 p= .060
nausea	0.263 p= 276	0.107 p= .662	0.019 p= .938	-0.198 p= .417
stomach awareness	0.373 p= .116	0.213 p= 382	0.123 p= .615	-0.087 p= .724
symptom (other)	**-0.674** p= .002	**-0.629** p= 004	**-0.630** p= 004	-0.591 p= 008
MISC	0.557 p= 013	0.403 p= 087	0.316 p= .187	0.113 p= .646
MS medicine	-0 344 p= .150	-0.425 p= 069	-0.436 p= 062	-0.526 p= 021
decision making	-0.334 p= .162	-0.237 p= .329	-0.422 p= .072	-0.177 p= .469
concentration	-0.407 p= .084	-0.408 p= 083	-0.510 p= 026	-0.366 p= 123
memory	-0.604 p= 006	-0.499 p= 030	**-0.633** p= .004	-0.368 p= .121
simple tasks	-0 528 p= .020	-0.393 p= .096	-0.525 p= 021	-0.213 p= .381
balance	0 489 p= .034	0.398 p= .092	0.372 p= .116	0.288 p= .232
carrying / moving	0.525 p= 021	0.447 p= 055	0.382 p= .106	0.303 p= .207
hand coordination	0.116 p= .637	0.042 p= .864	-0.100 p= .684	-0.111 p= 651
vision	-0.330 p= .167	-0.292 p= .225	-0.405 p= .086	-0.206 p= 396
performance (other)	-0.296 p= .218	-0.418 p= .075	-0.211 p= .386	-0.293 p= 224
more mistakes	-0.111 p= 651	-0.144 p= .558	-0.116 p= .637	-0.024 p= .921
longer time	0.189 p= 440	0.064 p= .795	-0.097 p= .693	-0.235 p= 332
not finished	-0.092 p= .709	0.033 p= .893	0.017 p= .945	0.259 p= .283
abandoned	0.354 p= .138	0.240 p= .322	0.158 p= .517	0.108 p= .661
not attempt	0.299 p= .214	0.189 p= 439	0.249 p= .304	0.170 p= .486
completion (other)	0 276 p= .253	0.164 p= .501	-0.058 p= 814	-0.236 p= .331
cold / flu	**-0.711** p= 001	**-0.619** p= 005	**-0.670** p= 002	-0.472 p= .041
air quality	-0.334 p= 162	-0.289 p= .230	-0.393 p= .096	-0.174 p= .476
noise	-0.141 p= .566	-0.106 p= .667	-0.254 p= .294	-0.185 p= .447
vibration	**0.702** p= 001	**0.622** p= .004	0.513 p= 025	0.331 p= 167
too bright	0.343 p= .151	0.366 p= .124	0.387 p= .102	0.373 p= 115
too dark	0.121 p= 622	0.107 p= .664	-0.065 p= .792	-0.008 p= 973
too hot	-0.165 p= 499	-0.197 p= .418	-0.299 p= .214	-0.368 p= .121
too cold	-0.562 p= 012	-0.510 p= 026	-0.518 p= .023	-0.322 p= .179
other (other)	-0.182 p= 455	-0.236 p= .330	-0.118 p= .630	-0.110 p= .654

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 3 2 Correlation, Ship D, no MS group, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= .000	**0.879** p= .000	**0.676** p= 001
ship pitch	**0.942** p= 000	1	**0.848** p= .000	**0.799** p= .000
ship Laccn	**0.879** p= 000	**0.848** p= .000	1	**0.846** p= .000
ship roll	**0.676** p= 001	**0.799** p= .000	**0.846** p= .000	1
sleep quality	0.354 p= .137	0.367 p= .122	0.186 p= .447	0.126 p= .607
sleep time	0.022 p= 930	0.052 p= .832	-0.007 p= .976	0.006 p= .980
sleep motions	**0.750** p= 000	**0.708** p= .001	0.573 p= .010	0.435 p= .063
sleep MS	**-0.695** p= 001	-0.568 p= .011	**-0.762** p= .000	-0.445 p= .056
sleep (other)	-0 605 p= 006	-0.539 p= .017	-0.573 p= 010	-0.448 p= .054
mental fatigue	0.067 p= 787	0.128 p= .600	-0.151 p= 538	-0.087 p= .724
physical fatigue	-0.176 p= 470	-0.117 p= .634	-0.325 p= .175	-0.283 p= .240
sleepy	-0.215 p= 376	-0.154 p= .529	-0.427 p= .069	-0.312 p= .193
headache	-0.206 p= 398	-0.295 p= .220	-0.205 p= .399	-0.270 p= .263
apathy	0.591 p= 008	0.451 p= .052	0.427 p= .069	0.174 p= .477
tension	-0.170 p= 487	-0.246 p= .310	-0.238 p= .326	-0.225 p= .355
vomit	no data	no data	no data	no data
nausea	no data	no data	no data	no data
stomach awareness	no data	no data	no data	no data
symptom (other)	-0.603 p= 006	-0.600 p= 007	-0.447 p= .055	-0.444 p= .057
MISC	0 017 p= 946	-0.206 p= 396	-0.115 p= .640	-0.359 p= .131
MS medicine	-0 204 p= 403	-0.335 p= 161	-0.316 p= .187	-0.476 p= 039
decision making	-0.273 p= .257	-0.192 p= 431	-0.216 p= .375	-0.020 p= .935
concentration	-0 490 p= 033	-0.562 p= .012	-0.611 p= .005	-0.589 p= 008
memory	-0.322 p= .179	-0.241 p= 321	-0.296 p= 218	-0.193 p= 428
simple tasks	-0.597 p= 007	-0.598 p= 007	**-0.618** p= .005	-0.572 p= 010
balance	0.532 p= 019	0.422 p= 072	0.410 p= .081	0.208 p= 393
carrying / moving	0.473 p= 041	0.340 p= 155	0.363 p= .126	0.147 p= .547
hand coordination	0 040 p= .872	-0.053 p= 829	-0.110 p= .655	-0.264 p= .274
vision	0.031 p= .900	-0.113 p= 645	-0.025 p= .918	-0.086 p= 726
performance (other)	-0.604 p= .006	**-0.646** p= 003	-0.555 p= .014	-0.594 p= 007
more mistakes	-0.064 p= .795	-0.047 p= .848	0.022 p= .929	0.014 p= .955
longer time	0.010 p= 969	-0.085 p= .730	-0.183 p= .453	-0.369 p= .121
not finished	-0.121 p= .622	-0 001 p= .998	-0.072 p= .771	0.169 p= 488
abandoned	0.085 p= 728	0.148 p= .544	-0.102 p= .676	0.141 p= .564
not attempt	0.393 p= .096	0.405 p= .085	0.458 p= 048	0.416 p= .076
completion (other)	0.158 p= .519	0.061 p= .804	-0.038 p= .878	-0.174 p= .477
cold / flu	**-0.682** p= 001	**-0.618** p= 005	-0.587 p= 008	-0.488 p= 034
air quality	-0.501 p= 029	-0.484 p= 036	**-0.629** p= .004	-0.497 p= 031
noise	-0.354 p= .137	-0.339 p= .156	-0.437 p= .061	-0.410 p= .081
vibration	**0.664** p= .002	0.574 p= .010	0.507 p= 027	0.256 p= 290
too bright	0.468 p= 043	0 504 p= .028	0.336 p= .160	0.289 p= 230
too dark	-0.346 p= 147	-0.224 p= 357	-0.468 p= .043	-0.187 p= 442
too hot	-0.361 p= .129	-0.335 p= 160	-0.563 p= .012	-0.593 p= 007
too cold	-0.265 p= .273	-0.188 p= .441	-0.303 p= .207	-0.108 p= 660
other (other)	-0.122 p= .620	-0.216 p= 374	-0.087 p= .722	-0.190 p= .437

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 3.3 Correlation, Ship D, any MS group, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= 000	**0.879** p= .000	**0.676** p= .001
ship pitch	**0.942** p= 000	1	**0.848** p= 000	**0.799** p= 000
ship Laccn	**0.879** p= 000	**0.848** p= .000	1	**0.846** p= 000
ship roll	**0.676** p= .001	**0.799** p= .000	**0.846** p= 000	1
sleep quality	0.584 p= 009	0.590 p= 008	0.571 p= .011	0.544 p= .016
sleep time	0.384 p= .105	0.365 p= 125	0.417 p= .076	0.332 p= 164
sleep motions	**0.778** p= .000	**0.731** p= .000	**0.655** p= 002	0.501 p= 029
sleep MS	**0.723** p= 000	**0.705** p= 001	**0.702** p= 001	0.567 p= 011
sleep (other)	-0.572 p= .010	-0.392 p= .097	-0.566 p= .012	-0.278 p= .249
mental fatigue	0 258 p= .286	0.258 p= .286	0.087 p= .722	0.004 p= .988
physical fatigue	0 508 p= .026	0.512 p= .025	0.463 p= .046	0.377 p= .112
sleepy	0.466 p= 044	0.540 p= 017	0.336 p= .160	0.366 p= .123
headache	**0.642** p= 003	0.556 p= 013	0.523 p= 022	0.396 p= .093
apathy	**0.681** p= .001	**0.628** p= 004	**0.645** p= 003	0.495 p= .031
tension	-0.010 p= .967	0.044 p= .859	-0.195 p= 423	-0.075 p= .761
vomit	**0.724** p= 000	**0.715** p= .001	**0.657** p= .002	0.454 p= .051
nausea	0.278 p= .248	0.123 p= 617	0.043 p= .861	-0.173 p= .480
stomach awareness	0.389 p= .100	0.231 p= 341	0.151 p= .537	-0.055 p= .824
symptom (other)	-0.564 p= 012	-0.494 p= 032	-0.598 p= 007	-0.538 p= 018
MISC	**0.630** p= .004	0.501 p= .029	0.400 p= 090	0.219 p= 367
MS medicine	-0 375 p= 113	-0.394 p= .095	-0.424 p= 070	-0.440 p= .059
decision making	-0.226 p= .352	-0.160 p= 512	-0.366 p= 124	-0.197 p= 418
concentration	-0.320 p= 182	-0.280 p= .245	-0.393 p= .096	-0.201 p= 408
memory	-0 588 p= .008	-0.495 p= 031	**-0.628** p= 004	-0.350 p= 142
simple tasks	-0.265 p= 273	-0.103 p= .676	-0.237 p= .328	0.092 p= .709
balance	0.399 p= .090	0.336 p= .159	0.308 p= 200	0.317 p= .186
carrying / moving	0.465 p= .045	0.437 p= 061	0.334 p= .163	0.354 p= .137
hand coordination	0.103 p= .673	0.086 p= .726	-0.041 p= 866	0.064 p= .796
vision	-0.368 p= .121	-0.204 p= 401	-0.390 p= .099	-0.118 p= .631
performance (other)	0.308 p= 199	0.214 p= .379	0.364 p= 125	0.307 p= .200
more mistakes	-0.108 p= .661	-0.167 p= .493	-0.202 p= .407	-0.089 p= 716
longer time	0.223 p= .359	0.108 p= .660	-0.046 p= .851	-0.137 p= .575
not finished	-0.036 p= .883	0.028 p= .909	0.062 p= .802	0.179 p= 464
abandoned	0.369 p= .120	0.204 p= .403	0.231 p= .341	0.056 p= .819
not attempt	0.087 p= 723	-0.039 p= 873	0.001 p= .998	-0.057 p= .818
completion (other)	0.241 p= 321	0.170 p= 486	-0.061 p= .803	-0.189 p= .438
cold / flu	-0.615 p= .005	-0.503 p= 028	-0.607 p= 006	-0.350 p= .142
air quality	-0.049 p= .841	-0.005 p= 985	-0.025 p= .919	0.157 p= 521
noise	0 059 p= .811	0.108 p= .660	-0.055 p= 824	0.041 p= .868
vibration	0.586 p= .008	0 539 p= .017	0.423 p= .071	0.348 p= .144
too bright	0.079 p= .747	0.080 p= .744	0.265 p= .273	0.287 p= .234
too dark	0.313 p= 191	0.248 p= 307	0.181 p= .459	0.114 p= .642
too hot	0.082 p= 739	0.039 p= .875	0.093 p= .706	0.044 p= 857
too cold	-0.491 p= 033	-0 469 p= 043	-0.414 p= 078	-0.294 p= .221
other (other)	-0 169 p= 489	-0.182 p= 457	-0.107 p= 663	-0.021 p= 932

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 3.4. Correlation, Ship D, low MS group, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= 000	**0.879** p= 000	**0.676** p= .001
ship pitch	**0.942** p= 000	1	**0.848** p= 000	**0.799** p= .000
ship Laccn	**0.879** p= 000	**0.848** p= .000	1	**0.846** p= .000
ship roll	**0.676** p= 001	**0.799** p= 000	**0.846** p= .000	1
sleep quality	0.457 p= 049	0.441 p= 059	0.476 p= 039	0.432 p= .064
sleep time	0.258 p= .286	0.244 p= .313	0.282 p= .243	0.235 p= 332
sleep motions	**0.721** p= 000	**0.654** p= 002	0.607 p= 006	0.441 p= .059
sleep MS	0.029 p= .907	-0.013 p= 957	0.022 p= .930	-0.124 p= .612
sleep (other)	-0.560 p= .013	-0 456 p= 050	-0.563 p= .012	-0.377 p= .112
mental fatigue	0.095 p= .699	0.135 p= .583	-0.006 p= .981	0.050 p= .840
physical fatigue	0.286 p= .236	0.267 p= .268	0.282 p= .243	0.202 p= .407
sleepy	0.238 p= .327	0.304 p= .206	0.092 p= .709	0.171 p= 485
headache	0 430 p= .066	0.351 p= 141	0.351 p= .140	0.301 p= .211
apathy	0.613 p= 005	0.558 p= .013	0.555 p= 014	0.359 p= .131
tension	-0.229 p= .347	-0.119 p= .628	-0.331 p= 167	-0.084 p= .733
vomit	0 375 p= .114	0.377 p= .111	0.059 p= 811	-0.043 p= 860
nausea	-0.104 p= 671	-0.254 p= .294	-0.358 p= .132	-0.547 p= 015
stomach awareness	0.029 p= 906	-0.100 p= .684	-0 297 p= .216	-0.391 p= 098
symptom (other)	**-0.772** p= .000	**-0.753** p= 000	**-0.813** p= 000	**-0.710** p= 001
MISC	0.052 p= .832	-0.127 p= .604	-0.090 p= 715	-0.263 p= .277
MS medicine	-0.045 p= .855	0.072 p= .769	0.142 p= .561	0.407 p= .084
decision making	-0.427 p= 068	-0.349 p= 143	-0.418 p= 075	-0.213 p= 381
concentration	-0.507 p= 027	-0.387 p= .102	-0.526 p= 021	-0.213 p= .381
memory	-0.352 p= 140	-0.261 p= 280	-0.359 p= .131	-0.093 p= .706
simple tasks	-0.465 p= 045	-0 368 p= .121	-0.545 p= .016	-0.357 p= .134
balance	0 301 p= .211	0.186 p= 445	0.242 p= .318	0.191 p= 434
carrying / moving	0.404 p= 086	0.291 p= 228	0 314 p= 191	0.213 p= .381
hand coordination	0.129 p= 600	0.182 p= 455	0.017 p= 945	0.230 p= .343
vision	-0.259 p= .284	-0.095 p= .700	-0.239 p= .325	0.068 p= .782
performance (other)	-0.012 p= 962	-0.070 p= 777	-0.145 p= .554	-0.277 p= .252
more mistakes	-0.375 p= 113	-0.291 p= 227	-0.350 p= 142	-0.029 p= .905
longer time	0.297 p= 217	0.268 p= .267	-0.016 p= .947	-0.007 p= .976
not finished	-0.178 p= 466	-0.155 p= .526	-0.026 p= .915	-0.046 p= .852
abandoned	-0.088 p= 720	-0.163 p= .505	0.046 p= 851	0.039 p= .873
not attempt	0.063 p= 798	-0.062 p= .801	0.004 p= .986	-0.034 p= .889
completion (other)	no data	no data	no data	no data
cold / flu	-0.541 p= 017	-0.465 p= .045	-0.483 p= 036	-0 303 p= .208
air quality	-0.243 p= .317	-0.217 p= .372	-0.149 p= .543	-0.033 p= 894
noise	-0.106 p= 667	-0.216 p= 373	-0.128 p= 600	-0.199 p= .415
vibration	0.275 p= .254	0.169 p= 490	0.178 p= 465	0.104 p= .672
too bright	-0.305 p= .205	-0.353 p= 139	-0.214 p= .378	-0.324 p= 176
too dark	0.088 p= .720	0.086 p= 726	-0.067 p= .784	-0.084 p= 733
too hot	-0.396 p= .094	-0.386 p= 103	-0.352 p= .139	-0.346 p= .147
too cold	-0.401 p= 089	-0.307 p= 201	-0.361 p= .129	-0.076 p= .758
other (other)	**-0.647** p= 003	-0 579 p= 009	**-0.730** p= .000	-0.599 p= .007

Legend **bold** = high significance (p < 0 005), normal = significant (p < 0 05), shade = not significant (p > 0 05)

Table D 3 5: Correlation, Ship D, high MS group, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= 000	**0.879** p= .000	**0.676** p= 001
ship pitch	**0.942** p= .000	1	**0.848** p= 000	**0.799** p= .000
ship Laccn	**0.879** p= 000	**0.848** p= .000	1	**0.846** p= .000
ship roll	**0.676** p= 001	**0.799** p= 000	**0.846** p= .000	1
sleep quality	**0.635** p= .004	**0.663** p= .002	0.593 p= .007	0.592 p= .008
sleep time	0.448 p= 054	0.425 p= .070	0.490 p= 033	0.374 p= .115
sleep motions	**0.767** p= .000	**0.738** p= .000	**0.651** p= .003	0.516 p= .024
sleep MS	**0.718** p= 001	**0.706** p= 001	**0.709** p= 001	0.604 p= .006
sleep (other)	-0.318 p= .184	-0.109 p= .657	-0.302 p= .208	0.001 p= .998
mental fatigue	0.393 p= .098	0.339 p= .156	0.220 p= .365	0.002 p= .995
physical fatigue	0.507 p= 027	0.519 p= 023	0.461 p= 047	0.408 p= 083
sleepy	0 482 p= 037	0.518 p= 023	0.447 p= .055	0.408 p= .083
headache	**0.650** p= 003	0.580 p= 009	0.540 p= 017	0.390 p= .098
apathy	0.372 p= .117	0.338 p= 158	0.382 p= 107	0.343 p= .151
tension	0.296 p= .219	0.250 p= .303	0.157 p= 522	0.073 p= 768
vomit	**0.725** p= 000	**0.709** p= 001	**0.690** p= 001	0.484 p= 036
nausea	0.355 p= .135	0.211 p= .386	0.161 p= 511	-0.041 p= .869
stomach awareness	0.473 p= .041	0.320 p= .181	0.314 p= .191	0.091 p= .710
symptom (other)	-0.208 p= 393	-0.124 p= .613	-0.222 p= .361	-0.223 p= 358
MISC	**0.692** p= 001	0.588 p= .008	0.494 p= 031	0.339 p= 156
MS medicine	-0.168 p= .492	-0.241 p= .320	-0.273 p= .259	-0.391 p= 098
decision making	0.037 p= 879	0.052 p= 832	-0.095 p= 699	-0.033 p= 892
concentration	-0.035 p= 886	-0.077 p= .755	-0.122 p= 619	-0.066 p= .789
memory	-0.534 p= 019	-0 467 p= 044	-0.567 p= .011	-0.345 p= .148
simple tasks	-0.110 p= .653	0.021 p= .932	-0.035 p= .888	0.248 p= 305
balance	0.433 p= 064	0.399 p= 090	0.352 p= .139	0.393 p= .096
carrying / moving	0.429 p= 067	0.436 p= .062	0.317 p= 187	0.382 p= 107
hand coordination	0.116 p= .636	0.073 p= .766	0.032 p= .897	0.067 p= .784
vision	-0 246 p= 311	-0.140 p= .567	-0.262 p= .278	-0.084 p= .732
performance (other)	0.296 p= .219	0.234 p= .335	0.422 p= .072	0.435 p= .062
more mistakes	0.129 p= 599	0.003 p= .990	0.011 p= .963	-0.076 p= 757
longer time	0.190 p= 436	0.045 p= .853	0.000 p= .000	-0.126 p= .606
not finished	0.059 p= .811	0.116 p= .635	0.093 p= 706	0.233 p= .336
abandoned	0.453 p= .051	0.293 p= .224	0.256 p= 290	0.065 p= .792
not attempt	0.104 p= .672	0.011 p= .963	0.002 p= 993	-0.066 p= 787
completion (other)	0.214 p= 379	0.143 p= 559	-0.072 p= .769	-0.197 p= .419
cold / flu	-0.419 p= .074	-0.315 p= .190	-0.430 p= .066	-0.190 p= 437
air quality	0.231 p= 342	0.247 p= .308	0.203 p= .404	0.326 p= 173
noise	0.225 p= 355	0.346 p= .147	0.116 p= 636	0.284 p= .238
vibration	**0.679** p= .001	**0.654** p= .002	0 525 p= 021	0.457 p= 049
too bright	0.326 p= 173	0.361 p= .129	0.474 p= 041	0.581 p= .009
too dark	0.345 p= 148	0.256 p= .291	0.285 p= .236	0.208 p= .393
too hot	0.234 p= .335	0 179 p= .463	0.241 p= 321	0.182 p= .455
too cold	-0.359 p= 131	-0.431 p= .065	-0.255 p= 292	-0.369 p= .120
other (other)	0 250 p= .302	0.189 p= .439	0.351 p= 140	0.331 p= .166

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 3.6: Correlation, Ship D, cognitive tasks, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= 000	**0.879** p= 000	**0.676** p= 001
ship pitch	**0.942** p= 000	1	**0.848** p= 000	**0.799** p= 000
ship Laccn	**0.879** p= 000	**0.848** p= .000	1	**0.846** p= 000
ship roll	**0.676** p= 001	**0.799** p= .000	**0.846** p= 000	1
sleep quality	0.476 p= .039	0.510 p= .026	0.406 p= 084	0.403 p= .087
sleep time	0.174 p= .477	0.230 p= .343	0.202 p= .407	0.228 p= .347
sleep motions	**0.823** p= 000	**0.771** p= 000	**0.695** p= 001	0.533 p= .019
sleep MS	**0.659** p= .002	**0.657** p= 002	0.585 p= 009	0.520 p= 022
sleep (other)	**-0.747** p= 000	**-0.623** p= 004	**-0.713** p= 001	-0.483 p= .036
mental fatigue	-0.123 p= .615	-0.107 p= .662	-0.296 p= 218	-0.312 p= .193
physical fatigue	0.009 p= 970	0.106 p= .666	-0.043 p= 862	0.056 p= 820
sleepy	-0.110 p= .653	-0.007 p= .978	-0.256 p= .291	-0.180 p= 460
headache	0.266 p= .272	0.192 p= 432	0.114 p= 641	0.053 p= .831
apathy	0.404 p= 086	0.323 p= 178	0.234 p= 335	0.058 p= 814
tension	-0.371 p= 118	-0.500 p= .029	-0 517 p= 023	-0.543 p= 016
vomit	**0.833** p= 000	**0.793** p= 000	**0.735** p= 000	0.527 p= 021
nausea	0.341 p= .153	0.169 p= .490	0.129 p= .599	-0.151 p= .538
stomach awareness	0.251 p= 301	0.065 p= 792	0.027 p= .913	-0.202 p= 408
symptom (other)	-0.588 p= 008	-0.593 p= 007	-0.542 p= 017	-0.549 p= 015
MISC	**0.646** p= 003	0.490 p= 033	0.399 p= .090	0.202 p= 408
MS medicine	-0.497 p= .030	-0.566 p= 012	-0.567 p= 011	**-0.633** p= 004
decision making	-0.250 p= .302	-0.220 p= .365	-0.312 p= .193	-0.288 p= 232
concentration	-0.404 p= .087	-0.369 p= .120	-0.423 p= 071	-0.316 p= .187
memory	-0.527 p= 020	-0.475 p= .040	-0.526 p= 021	-0.417 p= 075
simple tasks	-0 613 p= 005	-0.510 p= .026	-0.613 p= .005	-0.414 p= 078
balance	0.472 p= .041	0.399 p= .091	0.340 p= .154	0.240 p= 322
carrying / moving	0.543 p= 016	0.448 p= .054	0.399 p= .091	0.268 p= .268
hand coordination	-0.171 p= 484	-0.300 p= .212	-0.326 p= .173	-0.484 p= 036
vision	-0.418 p= .075	-0.376 p= .113	-0.426 p= .069	-0.279 p= .248
performance (other)	-0 576 p= .010	**-0.618** p= .005	-0.530 p= 020	-0.585 p= 009
more mistakes	-0.274 p= 257	-0.264 p= .275	-0.256 p= .290	-0.148 p= 544
longer time	-0.037 p= .881	-0.139 p= 571	-0.251 p= .300	-0.375 p= .114
not finished	-0.125 p= .609	0.002 p= 992	0.000 p= .000	0.240 p= .322
abandoned	0.064 p= .795	-0.040 p= .871	-0.005 p= .985	-0.004 p= .988
not attempt	0.440 p= .059	0.423 p= 071	0.521 p= .022	0.482 p= 036
completion (other)	0.258 p= .286	0.170 p= 486	0.005 p= .983	-0.152 p= .535
cold / flu	**-0.748** p= .000	**-0.681** p= 001	**-0.698** p= .001	-0.542 p= 017
air quality	-0.134 p= .583	-0.086 p= 725	-0.181 p= .457	0.006 p= .980
noise	-0.220 p= .387	-0.212 p= .384	-0.287 p= .233	-0.275 p= .255
vibration	0 580 p= .009	0.461 p= 047	0.435 p= .063	0.203 p= 405
too bright	0.223 p= 359	0.319 p= .183	0.269 p= .266	0.354 p= .137
too dark	0.289 p= .231	0.363 p= .126	0.172 p= 481	0.347 p= 145
too hot	-0.186 p= .445	-0.239 p= .324	-0.218 p= .370	-0.331 p= .166
too cold	-0.449 p= .054	-0.428 p= .067	-0.428 p= .067	-0.332 p= .165
other (other)	-0.265 p= .273	-0.361 p= .129	-0.281 p= .244	-0.370 p= .118

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table D 3.7. Correlation, Ship D, physical tasks, previous motions (page 1 of 1)

	ship Vaccn	ship pitch	ship Laccn	ship roll
ship Vaccn	1	**0.942** p= 000	**0.879** p= .000	**0.676** p= 001
ship pitch	**0.942** p= 000	1	**0.848** p= 000	**0.799** p= 000
ship Laccn	**0.879** p= 000	**0.848** p= .000	1	**0.846** p= 000
ship roll	**0.676** p= 001	**0.799** p= 000	**0.846** p= .000	1
sleep quality	0.582 p= .009	0.552 p= .014	0.467 p= 044	0.367 p= .123
sleep time	0.334 p= .162	0.239 p= .325	0.283 p= .240	0.105 p= .667
sleep motions	**0.750** p= 000	**0.705** p= .001	0.572 p= 010	0.432 p= .065
sleep MS	0.556 p= 013	0.554 p= .014	0.549 p= .015	0.452 p= .052
sleep (other)	-0.432 p= .065	-0.347 p= .145	-0.460 p= .047	-0.331 p= .166
mental fatigue	0.333 p= .164	0.337 p= .159	0.208 p= .392	0.125 p= .611
physical fatigue	0.358 p= 132	0.316 p= 187	0.249 p= .303	0.086 p= .726
sleepy	0.343 p= .151	0.350 p= 142	0.171 p= .484	0.199 p= .413
headache	0.501 p= 029	0.363 p= 127	0.440 p= .060	0.241 p= .320
apathy	**0.633** p= 004	0.512 p= 025	0.566 p= 012	0.330 p= 167
tension	0.009 p= 972	0.138 p= .572	-0.130 p= 596	0.026 p= 917
vomit	0.409 p= .082	0.417 p= .076	0.358 p= 133	0.208 p= .392
nausea	0.184 p= .451	0.069 p= .779	-0.064 p= .798	-0.190 p= .435
stomach awareness	0.439 p= .060	0.325 p= 175	0.174 p= .476	0.008 p= .975
symptom (other)	**-0.660** p= 002	-0.552 p= .014	**-0.638** p= .003	-0.550 p= .015
MISC	0.408 p= .083	0.279 p= .248	0.190 p= .436	0.016 p= .949
MS medicine	0.128 p= 600	0.083 p= .737	0.054 p= .826	-0.028 p= .909
decision making	-0.326 p= .173	-0.229 p= .347	-0.352 p= .139	-0.094 p= .703
concentration	-0.390 p= .099	-0.429 p= 067	-0.539 p= .017	-0.421 p= .073
memory	-0.533 p= .019	-0.401 p= .089	-0.545 p= 016	-0.236 p= .332
simple tasks	-0.166 p= .497	-0.111 p= .650	-0.174 p= 477	0.039 p= 875
balance	0.455 p= 050	0.352 p= .139	0.357 p= .133	0.296 p= .218
carrying / moving	0 462 p= 047	0.415 p= .077	0.323 p= .177	0.314 p= .190
hand coordination	0.228 p= .348	0.281 p= .243	0.117 p= 633	0.284 p= .238
vision	-0.231 p= .341	-0.221 p= .363	-0.342 p= .152	-0.199 p= 415
performance (other)	0.176 p= .471	0.060 p= .806	0.227 p= .350	0.163 p= .505
more mistakes	0.134 p= 586	0.097 p= .692	0.169 p= .490	0.178 p= .466
longer time	0.281 p= .245	0.170 p= 487	-0.007 p= .977	-0.131 p= .593
not finished	-0.010 p= .968	0.040 p= .870	0.000 p= 999	0.106 p= .665
abandoned	0.495 p= 031	0.416 p= .077	0.250 p= .302	0.169 p= .488
not attempt	0.101 p= 680	-0.007 p= .979	0.005 p= .983	-0.061 p= .803
completion (other)	0.192 p= .432	0.088 p= .721	-0.140 p= .566	-0.283 p= .240
cold / flu	-0.447 p= .055	-0.358 p= .132	-0.457 p= .049	-0.306 p= 202
air quality	-0 208 p= .392	-0.184 p= 450	-0.255 p= .293	-0.151 p= .537
noise	-0.060 p= 806	-0.009 p= .970	-0.197 p= .420	-0.101 p= .680
vibration	**0.656** p= .002	**0.640** p= 003	0.459 p= 048	0.368 p= 121
too bright	0.332 p= 165	0.291 p= 227	0.355 p= 136	0.279 p= .247
too dark	-0.351 p= .141	-0.482 p= 036	-0.477 p= 039	**-0.648** p= .003
too hot	-0 046 p= 852	-0.087 p= .723	-0.238 p= 330	-0.309 p= .199
too cold	-0.449 p= .054	-0.378 p= .111	-0.405 p= .085	-0.172 p= .482
other (other)	-0.154 p= 530	-0.111 p= .650	0.037 p= .880	0.217 p= 373

Legend **bold** = high significance ($p < 0.005$), normal = significant ($p < 0.05$), shade = not significant ($p > 0.05$)

Table E.1.1: Weighted Severity, Ship E, all subjects, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	15.24	17.99	16.08	21.88	22.30	35.27	31.39	41.81	29.31	57.50
sleep time	WS (%)	30.94	35.06	30.19	30.61	32.40	39.61	36.19	45.48	40.04	57.16
sleep motions	WS (%)	4.44	8.77	6.29	12.36	14.75	30.59	28.65	41.81	26 62	56.93
sleep MS	WS (%)	1.14	0.69	1.63	0.91	1.97	2.97	3.54	2.90	3.02	4.35
sleep (other)	WS (%)	10.69	10.27	10.84	8.16	8.59	8.79	10.16	7.47	10.96	10.65
mental fatigue	WS (%)	10.13	11.76	9.44	11.56	12.20	14.38	15.98	16.05	15.10	19.47
physical fatigue	WS (%)	13.31	14.88	11.54	14.17	14.98	18.04	20.21	21.07	19.46	24.97
sleepy	WS (%)	23.09	22.26	18.65	23.24	23.81	28.54	29.22	30.10	27.85	37.92
headache	WS (%)	6.94	7.61	7.69	8.28	10.69	11.99	13.70	13.49	12.30	16.72
apathy	WS (%)	8.53	10.38	10.26	8.50	12.66	12.21	16.21	12.04	12.75	13.86
tension	WS (%)	2.39	2.19	3.38	2.83	3.72	2.97	4.45	3.34	4.47	8.48
vomit	WS (%)	0.23	0.46	0.70	0.79	1.39	1.94	2.05	1.00	1.01	1.49
nausea	WS (%)	2.16	1.96	1.63	1.59	4.30	4.34	5.37	3.46	3.47	5.38
stomach awareness	WS (%)	6.48	4.73	5.83	4.65	9.29	9.93	12.10	8.58	8.84	12.83
symptom (other)	WS (%)	1.48	1.85	2.45	2.95	2.44	2.63	2.17	2.12	1.68	2.29
MISC	WS (%)	3.82	3.11	3.43	2.93	5.33	6.88	7.95	5.55	5.97	8.08
MS medicine	WS (%)	3.75	3.46	4.20	4.42	6.27	6.85	6.51	4.68	4.36	5.50
decision making	WS (%)	3.41	2.77	2.91	2.72	3.14	3.65	5.14	5.24	4.03	5.38
concentration	WS (%)	11.15	12.57	8.86	9.64	13.01	13.70	13.93	12.82	13.20	14.66
memory	WS (%)	6.26	4.61	5.24	4.31	4.88	6.05	6.85	5.91	7.72	6.99
simple tasks	WS (%)	1.82	2.54	2.68	1.59	2.09	2.40	3.31	2.90	3.47	4.35
balance	WS (%)	3.75	4.38	4.08	3.97	7.43	10.62	11.19	10.37	10.18	17.87
carrying / moving	WS (%)	3.87	3.34	2.68	2.04	5.69	6.62	8.22	6.80	6.60	13.86
hand coordination	WS (%)	2.05	1.38	2.10	1.36	2.44	3.88	3.65	4.12	3.47	6 30
vision	WS (%)	3.41	4.61	3.85	4.65	3.95	5.37	5.59	5.35	4.70	6.64
performance (other)	WS (%)	0.11	1.15	0.82	1.70	0.70	0.57	1.26	1.11	1.01	0.92
more mistakes	(%)	1.37	2.77	2.10	1.70	1.39	2.40	3.42	2.34	3.02	4.81
longer time	(%)	6.14	5.88	4.55	3.06	9.41	9.25	13.01	11.71	10.07	19.93
not finished	(%)	4.10	3.46	3.85	1.36	4.18	2.40	4.11	3.01	3.69	3.78
abandoned	(%)	2.05	2.42	3.15	2.38	2.09	3.08	3.08	2.34	2.35	4.47
not attempt	(%)	1.37	2.08	1.40	2.04	0.35	1.37	2.74	2.01	2.35	3.09
completion (other)	(%)	0.68	0.69	0.35	0.34	0.35	0.00	0.00	0.33	0.34	0.69
cold / flu	WS (%)	23.32	21.68	22.96	20.41	22.07	21.35	22.95	23.75	22.15	22.34
air quality	WS (%)	21.16	21.91	22.26	22.56	25.44	24.77	26.60	26.09	25.50	26.46
noise	WS (%)	28.33	28.14	27.51	28.00	28.46	29.68	30.48	29.88	29.98	33.45
vibration	WS (%)	20.36	17.76	17.13	17.57	22.30	24.89	25.11	25.42	25.28	35.97
too bright	WS (%)	9.67	7.04	7.34	6.80	7.55	8.79	8.45	8.70	7.16	8.36
too dark	WS (%)	5.92	8.42	6.41	7.82	9.41	8.56	8.68	8.47	9.17	8.36
too hot	WS (%)	6.26	4.15	5.01	5.33	5.92	6.85	5.71	6.91	7.05	7.45
too cold	WS (%)	8.19	10.27	8.62	7.37	9.87	10.05	10.05	10.37	8.72	7.90
other (other)	WS (%)	1.48	2.54	1.75	3.06	1.97	1.83	2.63	2.45	1.79	1.83

Table E.1.1: Weighted Severity, Ship E, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	38.87	32.43	21.62	20.18	23.16	23.10	18.76	28.44	21.89	27.22
sleep time	WS (%)	44.41	39.80	30.15	33.79	34.15	34.83	29.49	37.88	28.86	36.37
sleep motions	WS (%)	36.75	28.23	13.08	9.98	8.19	13.45	7.81	18.77	17.04	20.24
sleep MS	WS (%)	2.83	2.15	1.93	1.70	0.82	1.03	1.40	1.37	1.87	2.01
sleep (other)	WS (%)	8.01	6.35	7.51	5.78	12.75	8.51	6.88	7.28	4.60	8.64
mental fatigue	WS (%)	18.02	17.01	13.65	13.27	14.39	14.14	11.31	13.99	11.07	13.84
physical fatigue	WS (%)	21.32	20.98	15.02	18.48	17.66	18.05	15.03	17.97	12.69	17.36
sleepy	WS (%)	31.45	29.59	22.53	24.49	23.74	25.98	19.58	27.65	21.89	25.87
headache	WS (%)	15.55	11.34	12.40	10.43	9.47	11.03	9.67	11.60	10.95	11.15
apathy	WS (%)	13.86	8.84	11.04	9.52	9.24	10.46	9.56	9.67	11.32	11.09
tension	WS (%)	6.48	4.31	4.44	3.74	3.04	3.79	3.03	3.98	3.98	3.95
vomit	WS (%)	0.94	0.91	0.00	0.45	0.23	1.03	0.35	1.02	0.50	0.87
nausea	WS (%)	3.18	2.15	1.25	1.47	0.82	1.72	0.58	2.39	1.00	2.54
stomach awareness	WS (%)	8.36	4.88	3.30	2.72	2.46	4.02	2.68	5.12	3.61	6.34
symptom (other)	WS (%)	1.88	2.15	1.93	1.81	1.87	1.95	2.10	2.28	1.74	2.09
MISC	WS (%)	6.40	4.01	3.79	2.01	2.28	2.55	2.66	3.58	3.99	4.44
MS medicine	WS (%)	6.01	4.08	2.05	2.72	2.81	3.79	1.75	2.73	2.24	4.11
decision making	WS (%)	6.01	5.22	5.01	4.65	3.39	3.79	3.26	4.66	4.35	4.14
concentration	WS (%)	14.37	11.56	9.56	10.66	8.89	10.11	7.69	9.78	7.84	11.26
memory	WS (%)	7.54	7.37	5.92	4.54	4.33	5.40	5.01	5.46	4.35	5.72
simple tasks	WS (%)	4.59	3.51	3.87	3.40	2.11	2.41	2.21	3.07	2.49	2.88
balance	WS (%)	13.43	5 67	5.23	3.85	3.51	5.75	3.73	6.71	5.97	7.25
carrying / moving	WS (%)	10.60	5.33	4.32	3.97	3.16	4.14	4.08	4.21	5.22	5.51
hand coordination	WS (%)	5.89	2.95	3.41	2.15	1.75	2.76	2.33	2.96	3.98	3.10
vision	WS (%)	5.65	4.54	4.78	3.63	3.39	3.68	2.33	3.30	4.35	4.41
performance (other)	WS (%)	0.94	0.79	0.57	0.57	1.05	1.26	0.58	0.91	1.37	0.92
more mistakes	(%)	2.83	2.38	3.41	2.72	1.75	3.45	3.85	3.75	1.12	2.66
longer time	(%)	12.01	5.78	5.12	4.42	3.51	4.83	3.85	6.83	4.85	7.59
not finished	(%)	3.89	2.72	3.07	1.36	1.05	1.72	1.05	2.05	2.99	2.83
abandoned	(%)	3.53	1.70	1.71	1.36	1.05	1.72	1.40	1.02	2.99	2.31
not attempt	(%)	3.18	2.04	2.05	1.02	1.40	1.38	1.40	1.02	1.49	1.78
completion (other)	(%)	0.35	0.00	0.34	0.00	0.35	0.69	0.35	0.00	0.37	0.33
cold / flu	WS (%)	21.79	21.09	20.25	19.50	20.47	19.43	18.18	18.32	19.03	21.11
air quality	WS (%)	26.15	25.17	23.78	22.34	25.38	23.45	23.54	23.09	23.63	24.17
noise	WS (%)	31.45	28.80	27.65	27.78	28.77	29.89	26.69	29.69	25.62	28.96
vibration	WS (%)	28.27	21.09	19.68	19.16	20.47	21.03	18.65	21.73	22.01	22.31
too bright	WS (%)	8.83	7.71	6.71	7.14	8.42	7.59	6.88	7.74	7.71	7.82
too dark	WS (%)	9.19	8.50	8.76	8.16	6.43	8.51	8.51	7.39	6.34	8.05
too hot	WS (%)	7.07	7.14	5.80	5.44	5.50	5.52	4.55	6.26	5.60	5.97
too cold	WS (%)	9.54	8.28	9.10	8.16	8.07	10.00	7.93	9.22	7.84	8.92
other (other)	WS (%)	2.47	1.36	1.59	1.59	2.46	1.49	1.63	1.14	1.74	1.94

Ave.* = average over days 1.5 through 10.5

Table E.1.2: Weighted Severity, Ship E, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	11.63	11.28	9.79	15.93	14.73	28.19	22.92	35.97	21.64	49.64
sleep time	WS (%)	26.10	27.69	25.66	24.51	25.84	33.58	26.82	38.85	33.33	51.08
sleep motions	WS (%)	2.07	7.95	1.32	8.82	6.98	22.06	18.23	34.53	16.92	47.96
sleep MS	WS (%)	0.78	0.00	0.00	0.00	0.26	0.74	0.00	0.72	0.25	1.20
sleep (other)	WS (%)	9.04	7.44	6.61	5.15	5.68	7.84	8.07	5.76	7.46	11.51
mental fatigue	WS (%)	4.91	6.92	4.76	5.39	8.01	6.86	7.03	7.91	6.22	11.99
physical fatigue	WS (%)	9.04	10.00	7.94	10.05	10.85	14.22	13.02	15.83	11.19	18.47
sleepy	WS (%)	18.09	13.59	13.23	16.67	17.57	22.79	21.09	23.98	18.91	27.10
headache	WS (%)	2.84	1.79	1.32	4.17	3.62	6.13	7.29	8.15	7.21	8.87
apathy	WS (%)	7.24	7.44	10.32	6.37	10.85	9.31	13.28	10.31	10.45	7.67
tension	WS (%)	1.29	0.26	1.06	1.72	1.29	1.23	0.78	1.44	1.49	3.12
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.52	1.03	0.79	0.98	1.55	1.47	1.30	1.20	1.99	1.44
MISC	WS (%)	1.01	0.38	0.56	0.37	0.47	0.88	1.09	0.86	0.82	1.44
MS medicine	WS (%)	1.55	0.00	0.79	1.47	2.33	2.21	2.34	2.16	1.49	2.16
decision making	WS (%)	1.55	1.03	0.53	0.49	0.78	0.74	1.04	2.40	0.75	1.20
concentration	WS (%)	6.20	6.15	2.65	6.37	8.53	7.11	5.73	7.43	7.46	6.24
memory	WS (%)	3.88	2.05	2.38	1.96	2.33	2.21	2.60	3.36	3.23	2.64
simple tasks	WS (%)	0.52	0.51	0.00	0.49	0.52	0.49	0.52	0.96	1.00	0.96
balance	WS (%)	1.55	1.28	0.79	1.47	2.58	5.88	4.69	4.80	4.73	8.87
carrying / moving	WS (%)	3.62	1.54	1.32	0.74	2.33	2.70	3.13	2.88	1.99	6.47
hand coordination	WS (%)	0.78	0.26	0.26	0.00	0.78	1.47	0.52	1.68	0.25	1.92
vision	WS (%)	2.07	2.31	1.85	2.21	2.07	2.70	2.08	2.64	1.99	2.40
performance (other)	WS (%)	0.00	1.54	1.06	0.49	0.52	0.98	1.82	0.72	1.49	1.68
more mistakes	(%)	0.00	0.77	1.59	0.74	0.00	1.47	0.78	0.72	0.75	1.44
longer time	(%)	3.88	1.54	1.59	0.74	3.88	4.41	5.47	5.04	2.99	11.51
not finished	(%)	2.33	3.08	3.97	0.74	3.88	1.47	3.13	1.44	1.49	2.16
abandoned	(%)	3.10	3.08	2.38	1.47	1.55	0.74	1.56	0.72	2.24	2.16
not attempt	(%)	2.33	2.31	1.59	2.21	0.78	1.47	2.34	1.44	1.49	1.44
completion (other)	(%)	0.78	0.77	0.00	0.00	0.78	0.00	0.00	0.00	0.75	0.72
cold / flu	WS (%)	23.26	18.46	20.37	16.67	20.93	17.16	19.79	18.94	15.42	17.27
air quality	WS (%)	15.76	17.18	16.14	15.20	19.90	17.40	19.27	19.18	18.41	19.18
noise	WS (%)	23.77	22.82	21.16	23.77	21.96	23.53	24.48	23.74	21.89	27.34
vibration	WS (%)	15.76	13.08	12.43	12.50	15.76	15.93	19.01	19.18	16.92	26.86
too bright	WS (%)	9.56	5.13	5.56	5.64	6.72	6.62	5.99	7.43	4.48	6.71
too dark	WS (%)	4.91	5.90	5.82	6.86	5.94	5.15	5.73	5.76	5.72	5.28
too hot	WS (%)	5.43	2.31	4.76	4.41	3.10	3.92	2.86	3.12	3.23	3.84
too cold	WS (%)	9.30	8.72	8.73	5.88	10.59	9.31	9.11	10.07	6.22	6.95
other (other)	WS (%)	1.55	2.05	1.85	1.47	1.55	1.96	2.08	1.44	1.00	2.16

Table E.1.2: Weighted Severity, Ship E, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	27.47	24.51	14.10	15.71	17.21	15.52	12.50	22.66	15.03	20.34
sleep time	WS (%)	34.93	32.60	21.28	27.14	26.23	28.24	22.66	30.99	22.95	29.50
sleep motions	WS (%)	25.33	20.83	8.46	7.14	4.10	8.40	4.17	16.67	11.75	14.40
sleep MS	WS (%)	0.27	0.00	0.00	0.24	0.00	0.00	0.78	0.00	0.82	0.32
sleep (other)	WS (%)	4.53	5.88	5.64	5.95	9.84	5.60	5.73	5.21	2.73	6.61
mental fatigue	WS (%)	10.13	7.35	7.69	5.71	7.65	7.63	5.21	5.73	7.10	7.06
physical fatigue	WS (%)	15.20	12.25	9.49	10.24	11.20	10.69	7.81	9.64	8.74	11.36
sleepy	WS (%)	22.67	18.38	13.85	16.67	15.03	18.07	13.54	18.23	16.39	18.20
headache	WS (%)	6.40	2.94	3.85	2.14	2.46	3.05	4.43	3.91	4.64	4.49
apathy	WS (%)	10.40	3.92	7.18	4.76	7.92	5.60	6.51	5.47	9.56	8.14
tension	WS (%)	1.60	0.98	1.28	0.71	0.55	0.51	0.78	0.52	1.64	1.17
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.80	1.23	0.77	1.90	0.82	0.76	1.56	1.30	0.55	1.16
MISC	WS (%)	0.96	1.10	1.77	0.57	0.33	1.15	0.31	0.47	0.57	0.80
MS medicine	WS (%)	1.60	2.21	0.00	1.43	0.82	1.53	0.00	1.56	0.82	1.39
decision making	WS (%)	1.60	1.23	1.03	1.67	0.82	0.76	0.78	0.52	1.09	1.05
concentration	WS (%)	7.73	5.39	2.56	5.95	4.37	4.58	3.39	5.21	4.37	5.65
memory	WS (%)	2.67	2.21	2.05	1.43	1.37	1.53	1.56	2.34	2.19	2.31
simple tasks	WS (%)	1.33	0.74	0.51	0.71	0.27	0.25	0.26	0.52	0.82	0.60
balance	WS (%)	6.93	1.47	1.54	1.43	0.55	2.54	1.04	2.34	3.01	3.03
carrying / moving	WS (%)	4.80	1.72	1.54	2.14	1.37	1.02	1.30	1.30	2.19	2.32
hand coordination	WS (%)	2.40	0.49	0.51	0.24	0.27	0.25	0.52	0.52	0.82	0.73
vision	WS (%)	2.40	2.45	2.31	1.67	1.37	1.53	1.30	1.04	2.46	2.04
performance (other)	WS (%)	0.80	0.49	0.77	0.95	0.82	0.76	0.78	0.78	0.82	0.91
more mistakes	(%)	0.00	0.00	1.54	0.71	0.00	0.76	2.34	1.56	0.82	0.84
longer time	(%)	8.00	2.21	2.31	2.14	1.64	0.76	2.34	2.34	1.64	3.39
not finished	(%)	2.40	0.74	1.54	0.71	1.64	0.76	2.34	0.78	1.64	1.91
abandoned	(%)	2.40	0.74	1.54	1.43	1.64	0.76	1.56	0.78	1.64	1.66
not attempt	(%)	1.60	1.47	1.54	0.71	0.82	0.76	1.56	0.78	0.82	1.45
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.82	0.28
cold / flu	WS (%)	17.87	16.67	16.67	15.48	16.94	16.54	14.84	15.89	17.76	17.73
air quality	WS (%)	20.00	18.14	17.18	15.95	19.95	17.56	18.75	18.49	20.22	18.10
noise	WS (%)	23.20	25.25	19.49	22.14	21.31	23.92	21.35	25.00	20.22	22.97
vibration	WS (%)	19.73	15.44	11.54	13.57	13.11	14.25	12.76	16.67	15.57	15.79
too bright	WS (%)	6.93	5.15	5.13	5.00	6.56	6.36	4.95	6.51	5.74	6.11
too dark	WS (%)	5.07	6.62	6.15	4.76	4.10	6.11	6.25	4.43	5.19	5.57
too hot	WS (%)	2.67	3.43	1.79	2.14	2.46	2.80	2.60	2.60	0.82	3.07
too cold	WS (%)	6.67	6.13	7.44	4.76	6.28	9.67	6.77	7.55	7.92	7.79
other (other)	WS (%)	1.60	0.98	2.31	1.43	2.73	1.78	1.30	1.56	2.46	1.75

Ave.* = average over days 1.5 through 10.5

Table E.1.3: Weighted Severity, Ship E, any *MS* group, days *1.5 to 6.0* *(page 1 of 2)*

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	18.09	23.48	21.04	27.00	28.48	41.45	38.01	46.88	35.57	64.69
sleep time	WS (%)	34.76	41.09	33.75	35.86	37.76	44.87	43.50	51.25	45.53	62.72
sleep motions	WS (%)	6.30	9.43	10.21	15.40	21.10	38.03	36.79	48.13	34.55	65.13
sleep MS	WS (%)	1.42	1.26	2.92	1.69	3.38	4.91	6.30	4.79	5.28	7.24
sleep (other)	WS (%)	11.99	12.58	14.17	10.76	10.97	9.62	11.79	8.96	13.82	9.87
mental fatigue	WS (%)	14.23	15.72	13.13	16.88	15.61	20.94	22.97	23.13	22.36	26.32
physical fatigue	WS (%)	16.67	18.87	14.38	17.72	18.35	21.37	25.81	25.63	26.22	30.92
sleepy	WS (%)	27.03	29.35	22.92	28.90	28.90	33.55	35.57	35.42	35.16	47.81
headache	WS (%)	10.16	12.37	12.71	11.81	16.46	17.09	18.70	18.13	16.46	23.90
apathy	WS (%)	9.55	12.79	10.21	10.34	14.14	14.74	18.50	13.54	14.63	19.52
tension	WS (%)	3.25	3.77	5.21	3.80	5.70	4.49	7.32	5.00	6.91	13.38
vomit	WS (%)	0.41	0.84	1.25	1.48	2.53	3.63	3.66	1.88	1.83	2.85
nausea	WS (%)	3.86	3.56	2.92	2.95	7.81	8.12	9.55	6.46	6.30	10.31
stomach awareness	WS (%)	11.59	8.60	10.42	8.65	16.88	18.59	21.54	16.04	16.06	24.56
symptom (other)	WS (%)	2.24	2.52	3.75	4.64	3.16	3.63	2.85	2.92	1.42	3.07
MISC	WS (%)	6.04	5.35	5.69	5.13	9.30	12.12	13.29	9.63	10.18	14.14
MS medicine	WS (%)	5.49	6.29	6.88	6.96	9.49	10.90	9.76	6.88	6.71	8.55
decision making	WS (%)	4.88	4.19	4.79	4.64	5.06	6.20	8.33	7.71	6.71	9.21
concentration	WS (%)	15.04	17.82	13.75	12.45	16.67	19.44	20.33	17.50	17.89	22.37
memory	WS (%)	8.13	6.71	7.50	6.33	6.96	9.40	10.16	8.13	11.38	10.96
simple tasks	WS (%)	2.85	4.19	4.79	2.53	3.38	4.06	5.49	4.58	5.49	7.46
balance	WS (%)	5.49	6.92	6.67	6.12	11.39	14.74	16.26	15.21	14.63	26.10
carrying / moving	WS (%)	4.07	4.82	3.75	3.16	8.44	10.04	12.20	10.21	10.37	20.61
hand coordination	WS (%)	3.05	2.31	3.54	2.53	3.80	5.98	6.10	6.25	6.10	10.31
vision	WS (%)	4.47	6.50	5.42	6.75	5.49	7.69	8.33	7.71	6.91	10.53
performance (other)	WS (%)	0.20	0.84	0.63	2.74	0.84	0.21	0.81	1.46	0.61	0.22
more mistakes	(%)	2.44	4.40	2.50	2.53	2.53	3.21	5.49	3.75	4.88	7.89
longer time	(%)	7.93	9.43	6.88	5.06	13.92	13.46	18.90	17.50	15.85	27.63
not finished	(%)	5.49	3.77	3.75	1.90	4.43	3.21	4.88	4.38	5.49	5.26
abandoned	(%)	1.22	1.89	3.75	3.16	2.53	5.13	4.27	3.75	2.44	6.58
not attempt	(%)	0.61	1.89	1.25	1.90	0.00	1.28	3.05	2.50	3.05	4.61
completion (other)	(%)	0.61	0.63	0.63	0.63	0.00	0.00	0.00	0.63	0.00	0.66
cold / flu	WS (%)	23.37	24.32	25.00	23.63	23.00	25.00	25.41	27.92	27.64	26.97
air quality	WS (%)	25.41	25.79	27.08	28.90	29.96	31.20	32.32	32.08	31.30	33.11
noise	WS (%)	31.91	32.49	32.50	31.65	33.76	35.04	35.16	35.21	36.59	39.04
vibration	WS (%)	23.98	21.59	20.83	21.94	27.64	32.69	29.88	30.83	32.11	44.30
too bright	WS (%)	9.76	8.60	8.75	7.81	8.23	10.68	10.37	9.79	9.35	9.87
too dark	WS (%)	6.71	10.48	6.88	8.65	12.24	11.54	10.98	10.83	11.99	11.18
too hot	WS (%)	6.91	5.66	5.21	6.12	8.23	9.40	7.93	10.21	10.16	10.75
too cold	WS (%)	7.32	11.53	8.54	8.65	9.28	10.68	10.77	10.63	10.77	8.77
other (other)	WS (%)	1.42	2.94	1.67	4.43	2.32	1.71	3.05	3.33	2.44	1.54

Table E.1.3: Weighted Severity, Ship E, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	47.89	39.24	27.61	24.24	27.61	29.35	23.84	32.93	27.63	32.90
sleep time	WS (%)	51.90	45.99	37.22	39.83	40.08	40.25	35.02	43.23	33.79	42.02
sleep motions	WS (%)	45.78	34.60	16.77	12.55	11.25	17.61	10.76	20.40	21.46	25.07
sleep MS	WS (%)	4.85	4.01	3.48	3.03	1.43	1.89	1.90	2.42	2.74	3.42
sleep (other)	WS (%)	10.76	6.75	9.00	5.63	14.93	10.90	7.81	8.89	6.16	10.28
mental fatigue	WS (%)	24.26	25.32	18.40	20.13	19.43	19.50	16.24	20.40	14.38	19.44
physical fatigue	WS (%)	26.16	28.48	19.43	25.97	22.49	24.11	20.89	24.44	15.98	22.31
sleepy	WS (%)	38.40	39.24	29.45	31.60	30.27	32.49	24.47	34.95	26.48	32.21
headache	WS (%)	22.78	18.57	19.22	17.97	14.72	17.61	13.92	17.58	16.21	16.65
apathy	WS (%)	16.24	13.08	14.11	13.85	10.22	14.47	12.03	12.93	12.79	13.56
tension	WS (%)	10.34	7.17	6.95	6.49	4.91	6.50	4.85	6.67	5.94	6.24
vomit	WS (%)	1.69	1.69	0.00	0.87	0.41	1.89	0.63	1.82	0.91	1.59
nausea	WS (%)	5.70	4.01	2.25	2.81	1.43	3.14	1.05	4.24	1.83	4.65
stomach awareness	WS (%)	14.98	9.07	5.93	5.19	4.29	7.34	4.85	9.09	6.62	11.59
symptom (other)	WS (%)	2.74	2.95	2.86	1.73	2.66	2.94	2.53	3.03	2.74	2.86
MISC	WS (%)	10.70	6.52	5.40	3.31	3.74	3.71	4.56	6.00	6.85	7.46
MS medicine	WS (%)	9.49	5.70	3.68	3.90	4.29	5.66	3.16	3.64	3.42	6.36
decision making	WS (%)	9.49	8.65	8.18	7.36	5.32	6.29	5.27	7.88	7.08	6.70
concentration	WS (%)	19.62	16.88	15.13	14.94	12.27	14.68	11.18	13.33	10.73	15.89
memory	WS (%)	11.39	11.81	9.00	7.36	6.54	8.60	7.81	7.88	6.16	8.54
simple tasks	WS (%)	7.17	5.91	6.54	5.84	3.48	4.19	3.80	5.05	3.88	4.77
balance	WS (%)	18.57	9.28	8.18	6.06	5.73	8.39	5.91	10.10	8.45	10.75
carrying / moving	WS (%)	15.19	8.44	6.54	5.63	4.50	6.71	6.33	6.46	7.76	8.17
hand coordination	WS (%)	8.65	5.06	5.73	3.90	2.86	4.82	3.80	4.85	6.62	5.07
vision	WS (%)	8.23	6.33	6.75	5.41	4.91	5.45	3.16	5.05	5.94	6.37
performance (other)	WS (%)	1.05	1.05	0.41	0.22	1.23	1.68	0.42	1.01	1.83	0.92
more mistakes	(%)	5.06	4.43	4.91	4.55	3.07	5.66	5.06	5.45	1.37	4.17
longer time	(%)	15.19	8.86	7.36	6.49	4.91	8.18	5.06	10.30	7.53	11.08
not finished	(%)	5.06	4.43	4.29	1.95	0.61	2.52	0.00	3.03	4.11	3.61
abandoned	(%)	4.43	2.53	1.84	1.30	0.61	2.52	1.27	1.21	4.11	2.87
not attempt	(%)	4.43	2.53	2.45	1.30	1.84	1.89	1.27	1.21	2.05	2.06
completion (other)	(%)	0.63	0.00	0.61	0.00	0.61	1.26	0.00	0.00	0.00	0.36
cold / flu	WS (%)	24.89	24.89	23.11	23.16	23.11	21.80	20.89	20.20	20.09	23.92
air quality	WS (%)	31.01	31.22	29.04	28.14	29.45	28.30	27.43	26.67	26.48	29.20
noise	WS (%)	37.97	31.86	34.15	32.90	34.36	34.80	31.01	33.33	30.14	33.89
vibration	WS (%)	35.02	25.95	26.18	24.24	25.97	26.62	23.42	25.66	27.40	27.70
too bright	WS (%)	10.34	9.92	7.98	9.09	9.82	8.60	8.44	8.69	9.36	9.23
too dark	WS (%)	12.45	10.13	10.84	11.26	8.18	10.48	10.34	9.70	7.31	10.11
too hot	WS (%)	10.55	10.34	9.00	8.44	7.77	7.76	6.12	9.09	9.59	8.38
too cold	WS (%)	11.81	10.13	10.43	11.26	9.41	10.27	8.86	10.51	7.76	9.86
other (other)	WS (%)	3.16	1.69	1.02	1.73	2.25	1.26	1.90	0.81	1.14	2.09

Ave.* = average over days 1.5 through 10.5

Table E.1.4: *Weighted Severity, Ship E, low MS group, days 1.5 to 6.0* (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	11.67	19.68	15.04	23.50	18 29	35.39	27.92	42.46	27.24	57.02
sleep time	WS (%)	27.08	37.75	26.42	32.91	28.86	38.27	33.33	45.63	38.21	55.70
sleep motions	WS (%)	1.67	8.43	4.47	11.11	10.98	32.92	24.17	40.48	25.61	57.89
sleep MS	WS (%)	0.00	0.40	0.41	0.43	0.00	0.41	0.83	0.79	0.00	1.75
sleep (other)	WS (%)	10.00	9.24	9.35	7.69	6.50	8.64	10.83	8.33	10.57	7.02
mental fatigue	WS (%)	9.17	12.45	7.32	12.82	8.94	13.58	12.92	17.86	15.45	18.42
physical fatigue	WS (%)	11.67	15.66	7.32	12.39	11.79	14.81	13.75	19.05	18.29	22.81
sleepy	WS (%)	20.00	26.91	15.85	24 79	22.36	25.51	25.00	27.78	28.86	42.54
headache	WS (%)	6.25	7.63	8.13	5.98	11.79	9.88	10.00	10.32	10.57	17.98
apathy	WS (%)	5.83	9.24	5.69	5.56	10.16	9.47	11.67	7.54	10.57	13.16
tension	WS (%)	2.08	2.01	2.44	2.14	2.44	2.47	2.92	2.78	4.88	10.09
vomit	WS (%)	0.42	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	1.32
nausea	WS (%)	0.83	0.80	0.41	0.00	0.00	0.82	0.83	0.00	0.00	3.07
stomach awareness	WS (%)	4.17	0.80	3.25	0.43	3.66	4.12	4.58	1.59	1.22	11.84
symptom (other)	WS (%)	2.50	2.41	3.66	3 42	2.03	2.06	2.50	1.98	0.81	3.51
MISC	WS (%)	2.25	1.69	1.59	0.90	2.44	3.33	3.13	2.74	2.07	7.24
MS medicine	WS (%)	1.25	4.82	4.88	5.13	7.32	6.17	7.50	3.57	3.66	5.26
decision making	WS (%)	3.75	3.21	1.63	2.99	3.25	3.70	3.75	3.97	5.69	6.14
concentration	WS (%)	11.25	15.26	8.13	10.26	11.79	13.58	10.83	10.32	14.23	17.54
memory	WS (%)	7.50	5.22	3.25	2.56	4.47	5.35	4.58	5.16	8.94	8.33
simple tasks	WS (%)	1.25	3.21	1.63	1.28	2.03	2.06	2.08	1.98	3.66	5.26
balance	WS (%)	2.50	2.01	2.03	2.56	5.69	7.41	7.92	9.52	8.94	21.49
carrying / moving	WS (%)	2.08	2.81	1.22	0.43	3.25	4.12	6.25	6.35	6.10	16.23
hand coordination	WS (%)	1.25	1.61	0.81	0.85	1.22	1.23	2.92	2.78	4.47	6.14
vision	WS (%)	2.50	4.42	2.03	4.27	3.66	4.53	3.75	3.97	4.88	7.02
performance (other)	WS (%)	0.42	0.40	0.00	1.71	1.63	0.41	0.00	0.40	0.00	0.44
more mistakes	(%)	2.50	6.02	1.22	0.00	1.22	0.00	1.25	1.19	6.10	9.21
longer time	(%)	5.00	8.43	1.22	5.13	7.32	7.41	8.75	11.90	17.07	27.63
not finished	(%)	5.00	3.61	2.44	1.28	2.44	1.23	2.50	3.57	8.54	2.63
abandoned	(%)	1.25	2.41	2.44	1.28	1.22	1.23	1.25	1.19	3.66	2.63
not attempt	(%)	0.00	2.41	0.00	1.28	0.00	0.00	1.25	2.38	3 66	3.95
completion (other)	(%)	1.25	1.20	0.00	0.00	0.00	0.00	0.00	1.19	0.00	0.00
cold / flu	WS (%)	21.25	19.28	21.14	20.94	18.29	20.99	19.17	24.60	22.76	22.37
air quality	WS (%)	20.42	19.28	22.36	21.79	23.98	25.93	22.08	21.43	22.36	26.75
noise	WS (%)	29.58	26.91	30.08	25.21	30.49	28.81	32.50	30.56	34.15	32.46
vibration	WS (%)	17.08	14.46	14.23	14.53	20.73	25.51	23.75	23.41	27.24	35.53
too bright	WS (%)	10.00	6.83	7.32	5.56	6.10	8.23	7.08	7.14	6.91	5.70
too dark	WS (%)	7.08	10.44	7.72	10.26	14.23	12.35	10.83	10.71	10.98	10.53
too hot	WS (%)	4.58	4.42	3.66	4.70	7.32	6.58	5.00	7.94	7.72	8.33
too cold	WS (%)	8.33	14.46	10.98	9.83	11.38	12.35	12.50	8.73	10.57	8.33
other (other)	WS (%)	0.42	2.01	1.22	1.28	2.03	0.82	3.75	3.97	3.66	3.07

Table E.1.4: Weighted Severity, Ship E, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	39.32	32.48	18.75	14.72	19.83	23.33	17.30	24.50	21.17	25.77
sleep time	WS (%)	44.44	39.74	27.92	26.84	28.27	32.08	29.96	32.93	25.23	34.29
sleep motions	WS (%)	37.61	27.78	10.83	5.63	6.33	12.08	5.49	12.05	17.12	18.56
sleep MS	WS (%)	0.43	0.43	0.42	0.43	0.00	0.00	0.00	0.40	0.00	0.38
sleep (other)	WS (%)	9.40	6.84	6.67	2.60	9.28	7.50	5.49	5.62	4.05	7.66
mental fatigue	WS (%)	17.95	21.37	11.25	14.72	14.35	12.50	13.08	13.65	9.46	13.54
physical fatigue	WS (%)	19.23	23.50	9.58	18.61	19.41	17.92	17.30	16.87	9.91	15.78
sleepy	WS (%)	31.62	35.04	20.83	25.11	27.43	24.58	20.68	28.11	21.62	26.03
headache	WS (%)	17.95	15.81	12.92	9.96	11.39	12.08	8.86	10.84	12.61	11.10
apathy	WS (%)	9.40	9.83	7.50	8.23	5.91	7.92	8.86	8.43	5.86	8.46
tension	WS (%)	3.85	3.85	5.00	2.16	1.27	2.50	2.11	1.61	1.80	3.07
vomit	WS (%)	0.43	0.00	0.00	0.00	0.42	0.00	0.00	0.40	0.45	0.20
nausea	WS (%)	0.43	0.43	0.00	0.43	0.42	0.00	0.00	0.00	0.45	0.47
stomach awareness	WS (%)	2.99	1.71	0.00	0.43	0.84	0.83	1.27	0.80	3.15	2.51
symptom (other)	WS (%)	1.71	2.99	2.50	1.73	1.27	1.25	1.27	2.41	1.80	2.20
MISC	WS (%)	4.10	1.67	1.00	0.65	0.89	0.88	2.15	2.29	3.78	2.36
MS medicine	WS (%)	5.13	1.28	1.25	2.60	2.53	2.50	3.80	2.41	1.35	3.81
decision making	WS (%)	6.84	6.41	5.00	4.76	4.22	2.92	4.22	4.82	4.50	4.30
concentration	WS (%)	12.39	14.10	10.42	12.12	10.55	10.00	10.97	10.04	7.21	11.63
memory	WS (%)	5.98	8.97	6.25	4.33	5.49	5.00	6.75	5.22	4.05	5.65
simple tasks	WS (%)	4.70	3.85	3.75	2.16	2.11	0.83	2.53	2.01	1.80	2.54
balance	WS (%)	11.11	7.69	4.17	3.90	2.95	2.92	2.95	3.21	5.41	6.02
carrying / moving	WS (%)	8.55	4.27	2.92	3.03	2.53	1.67	2.11	2.01	5.41	4.28
hand coordination	WS (%)	3.42	2.56	2.50	0.43	0.84	1.25	1.69	0.80	4.50	2.17
vision	WS (%)	4.70	3.85	3.33	1.30	3.80	2.92	1.69	2.01	4.05	3.61
performance (other)	WS (%)	0.00	0.43	0.42	0.00	0.42	0.00	0.00	0.00	0.00	0.35
more mistakes	(%)	3.85	2.56	6.25	1.30	3.80	2.50	1.27	2.41	1.35	2.84
longer time	(%)	8.97	6.41	11.25	2.60	5.06	5.00	6.33	9.64	5.41	8.45
not finished	(%)	5.13	3.85	5.00	0.00	0.00	1.25	0.00	0.00	1.35	2.62
abandoned	(%)	5.13	2.56	2.50	0.00	0.00	0.00	0.00	0.00	2.70	1.66
not attempt	(%)	3.85	1.28	2.50	0.00	1.27	0.00	0.00	0.00	1.35	1.32
completion (other)	(%)	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26
cold / flu	WS (%)	21.79	20.51	20.42	19.48	20.25	17.08	18.14	14.46	16.22	19.96
air quality	WS (%)	26.50	24.36	19.17	19.48	21.52	21.67	20.68	20.08	17.12	21.94
noise	WS (%)	34.19	27.35	25.83	27.27	29.96	30.00	26.16	28.11	25.68	29.23
vibration	WS (%)	28.63	18.38	17.08	16.45	18.57	20.00	15.61	17.67	19.37	20.43
too bright	WS (%)	7.69	5.98	5.42	6.06	7.59	7.50	6.33	8.03	7.66	7.01
too dark	WS (%)	11.11	11.11	10.83	13.85	8.86	11.67	13.08	9.24	8.56	10.71
too hot	WS (%)	8.12	8.12	7.08	6.93	7.17	7.50	4.22	7.23	6.76	6.49
too cold	WS (%)	13.25	10.26	11.25	12.12	8.44	11.25	8.44	11.24	9.46	10.69
other (other)	WS (%)	2.56	2.14	0.42	0.87	1.27	0.83	0.42	0.80	0.45	1.68

Ave.* = average over days 1.5 through 10.5

Table E.1.5: Weighted Severity, Ship E, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	24 21	27.63	27.35	30.42	39.47	48.00	47.62	51.75	43.90	72.37
sleep time	WS (%)	42.06	44.74	41.45	38.75	47.37	52.00	53.17	57.46	52.85	69.74
sleep motions	WS (%)	10.71	10.53	16.24	19.58	32.02	43.56	48.81	56.58	43.50	72.37
sleep MS	WS (%)	2.78	2.19	5.56	2.92	7.02	9.78	11.51	9.21	10.57	12.72
sleep (other)	WS (%)	13.89	16.23	19.23	13.75	15.79	10.67	12.70	9.65	17.07	12.72
mental fatigue	WS (%)	19.05	19.30	19.23	20.83	22.81	28.89	32.54	28.95	29.27	34.21
physical fatigue	WS (%)	21.43	22.37	21.79	22.92	25.44	28.44	37.30	32.89	34.15	39.04
sleepy	WS (%)	33.73	32.02	30.34	32.92	35.96	42.22	45.63	43.86	41.46	53.07
headache	WS (%)	13.89	17.54	17.52	17.50	21.49	24.89	26.98	26.75	22.36	29.82
apathy	WS (%)	13.10	16.67	14.96	15.00	18.42	20.44	25.00	20.18	18.70	25.88
tension	WS (%)	4.37	5.70	8.12	5.42	9.21	6.67	11.51	7.46	8.94	16.67
vomit	WS (%)	0 40	1.75	2.56	2.92	5.26	7.56	6.75	3.95	3.66	4.39
nausea	WS (%)	6.75	6.58	5.56	5.83	16.23	16.00	17.86	13.60	12.60	17.54
stomach awareness	WS (%)	18.65	17.11	17.95	16.67	31.14	34.22	37.70	32.02	30.89	37.28
symptom (other)	WS (%)	1.98	2.63	3.85	5.83	4.39	5.33	3.17	3.95	2.03	2.63
MISC	WS (%)	9.64	9.34	10.00	9.25	16.71	21.60	22.98	17.24	18.29	21.05
MS medicine	WS (%)	9.52	7.89	8.97	8.75	11.84	16.00	11.90	10.53	9.76	11.84
decision making	WS (%)	5.95	5.26	8.12	6.25	7.02	8.89	12.70	11.84	7.72	12.28
concentration	WS (%)	18.65	20.61	19.66	14.58	21.93	25.78	29.37	25.44	21.54	27.19
memory	WS (%)	8.73	8.33	11.97	10.00	9.65	13.78	15.48	11.40	13.82	13.60
simple tasks	WS (%)	4.37	5.26	8.12	3.75	4.82	6.22	8.73	7.46	7.32	9.65
balance	WS (%)	8.33	12.28	11.54	9.58	17.54	22.67	24.21	21.49	20.33	30.70
carrying / moving	WS (%)	5.95	7.02	6.41	5.83	14.04	16.44	17.86	14.47	14.63	25.00
hand coordination	WS (%)	4.76	3.07	6.41	4.17	6.58	11.11	9.13	10.09	7.72	14.47
vision	WS (%)	6.35	8.77	8.97	9.17	7.46	11.11	12.70	11.84	8.94	14.04
performance (other)	WS (%)	0.00	1.32	1.28	3.75	0.00	0.00	1.59	2.63	1.22	0.00
more mistakes	(%)	2.38	2.63	3.85	5.00	3.95	6.67	9.52	6.58	3.66	6.58
longer time	(%)	10.71	10.53	12.82	5.00	21.05	20.00	28.57	23.68	14.63	27.63
not finished	(%)	5.95	3.95	5.13	2.50	6.58	5.33	7.14	5.26	2.44	7.89
abandoned	(%)	1.19	1.32	5.13	5.00	3.95	9.33	7.14	6.58	1.22	10.53
not attempt	(%)	1.19	1.32	2.56	2.50	0.00	2.67	4.76	2.63	2.44	5.26
completion (other)	(%)	0.00	0.00	1.28	1.25	0.00	0.00	0.00	0.00	0.00	1.32
cold / flu	WS (%)	25.40	29.82	29.06	26.25	28.07	29.33	31.35	31.58	32.52	31.58
air quality	WS (%)	30.16	32.89	32.05	35.83	36.40	36.89	42.06	43.86	40.24	39.47
noise	WS (%)	34.13	38.60	35.04	37.92	37.28	41.78	37.70	40.35	39.02	45.61
vibration	WS (%)	30.56	29.39	27.78	29.17	35.09	40.44	35.71	39.04	36.99	53.07
too bright	WS (%)	9.52	10.53	10.26	10.00	10.53	13.33	13.49	12.72	11.79	14.04
too dark	WS (%)	6.35	10.53	5.98	7.08	10.09	10.67	11.11	10.96	13.01	11.84
too hot	WS (%)	9.13	7.02	6.84	7.50	9.21	12.44	10.71	12.72	12.60	13.16
too cold	WS (%)	6.35	8.33	5.98	7.50	7.02	8.89	9.13	12.72	10.98	9.21
other (other)	WS (%)	2.38	3.95	2.14	7.50	2.63	2.67	2.38	2.63	1.22	0.00

Table E.1.5: Weighted Severity, Ship E, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	56.25	45.83	36.14	33.77	34.92	35.44	30.38	41.46	34.26	40.06
sleep time	WS (%)	59.17	52.08	46.18	52.81	51.19	48.52	40.08	53.66	42.59	49.78
sleep motions	WS (%)	53.75	41.25	22.49	19.48	15.87	23.21	16.03	28.86	25.93	31.62
sleep MS	WS (%)	9.17	7.50	6.43	5.63	2.78	3.80	3.80	4.47	5.56	6.49
sleep (other)	WS (%)	12.08	6.67	11.24	8.66	20.24	14.35	10.13	12.20	8.33	12.93
mental fatigue	WS (%)	30.42	29.17	25.30	25.54	24.21	26.58	19.41	27.24	19.44	25.39
physical fatigue	WS (%)	32.92	33.33	28.92	33.33	25.40	30.38	24.47	32.11	22.22	28.89
sleepy	WS (%)	45.00	43.33	37.75	38.10	32.94	40.51	28.27	41.87	31.48	38.45
headache	WS (%)	27.50	21.25	25.30	25.97	17.86	23.21	18.99	24.39	19.91	22.27
apathy	WS (%)	22.92	16.25	20.48	19.48	14.29	21.10	15.19	17.48	19.91	18.71
tension	WS (%)	16.67	10.42	8.84	10.82	8.33	10.55	7.59	11.79	10.19	9.43
vomit	WS (%)	2.92	3.33	0.00	1.73	0.40	3.80	1.27	3.25	1.39	3.01
nausea	WS (%)	10.83	7.50	4.42	5.19	2.38	6.33	2.11	8.54	3.24	8.90
stomach awareness	WS (%)	26.67	16.25	11.65	9.96	7.54	13.92	8.44	17.48	10.19	20.83
symptom (other)	WS (%)	3.75	2.92	3.21	1.73	3.97	4.64	3.80	3.66	3.70	3.54
MISC	WS (%)	17.13	11.25	9.64	5.97	6.43	6.58	6.96	9.76	10.00	12.62
MS medicine	WS (%)	13.75	10.00	6.02	5.19	5.95	8.86	2.53	4.88	5.56	8.93
decision making	WS (%)	12.08	10.83	11.24	9.96	6.35	9.70	6.33	10.98	9.72	9.12
concentration	WS (%)	26.67	19.58	19.68	17.75	13.89	19.41	11.39	16.67	14.35	20.22
memory	WS (%)	16.67	14.58	11.65	10.39	7.54	12.24	8.86	10.57	8.33	11.45
simple tasks	WS (%)	9.58	7.92	9.24	9.52	4.76	7.59	5.06	8.13	6.02	7.03
balance	WS (%)	25.83	10.83	12.05	8.23	8.33	13.92	8.86	17.07	11.57	15.55
carrying / moving	WS (%)	21.67	12.50	10.04	8.23	6.35	11.81	10.55	10.98	10.19	12.10
hand coordination	WS (%)	13.75	7.50	8.84	7.36	4.76	8.44	5.91	8.94	8.80	7.99
vision	WS (%)	11.67	8.75	10.04	9.52	5.95	8.02	4.64	8.13	7.87	9.15
performance (other)	WS (%)	2.08	1.67	0.40	0.43	1.98	3.38	0.84	2.03	3.70	1.49
more mistakes	(%)	6.25	6.25	3.61	7.79	2.38	8.86	8.86	8.54	1.39	5.51
longer time	(%)	21.25	11.25	3.61	10.39	4.76	11.39	3.80	10.98	9.72	13.78
not finished	(%)	5.00	5.00	3.61	3.90	1.19	3.80	0.00	6.10	6.94	4.62
abandoned	(%)	3.75	2.50	1.20	2.60	1.19	5.06	2.53	2.44	5.56	4.12
not attempt	(%)	5.00	3.75	2.41	2.60	2.38	3.80	2.53	2.44	2.78	2.79
completion (other)	(%)	0.00	0.00	1.20	0.00	1.19	2.53	0.00	0.00	0.00	0.46
cold / flu	WS (%)	27.92	29.17	25.70	26.84	25.79	26.58	23.63	26.02	24.07	27.93
air quality	WS (%)	35.42	37.92	38.55	36.80	36.90	35.02	34.18	33.33	36.11	36.53
noise	WS (%)	41.67	36.25	42.17	38.53	38.49	39.66	35.86	38.62	34.72	38.60
vibration	WS (%)	41.25	33.33	34.94	32.03	32.94	33.33	31.22	33.74	35.65	35.04
too bright	WS (%)	12.92	13.75	10.44	12.12	11.90	9.70	10.55	9.35	11.11	11.48
too dark	WS (%)	13.75	9.17	10.84	8.66	7.54	9.28	7.59	10.16	6.02	9.51
too hot	WS (%)	12.92	12.50	10.84	9.96	8.33	8.02	8.02	10.98	12.50	10.28
too cold	WS (%)	10.42	10.00	9.64	10.39	10.32	9.28	9.28	9.76	6.02	9.01
other (other)	WS (%)	3.75	1.25	1.61	2.60	3.17	1.69	3.38	0.81	1.85	2.51

Ave.* = average over days 1.5 through 10.5

Table F.1.1: Weighted Severity, Ship F, all subjects, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	19.25	16.18	20.94	20.55	24.79	32.88	33.33	40.18	32.88	35.16
sleep time	WS (%)	18.78	21.08	17.95	15.53	16.24	21.00	20.09	24.66	22.37	29.22
sleep motions	WS (%)	13.62	9.80	11.11	12.79	22.22	34.25	39.27	54.34	44.75	41.10
sleep MS	WS (%)	7.51	2.45	3.42	3.20	4.27	6.85	10.50	7.31	10.05	9.59
sleep (other)	WS (%)	14.55	22.55	15.38	11.87	11.11	10.50	11.87	6.85	5.48	8.22
mental fatigue	WS (%)	17.84	16.18	17.52	17.81	19.66	18.72	25.57	27.40	23.29	24.20
physical fatigue	WS (%)	27.70	26.47	21.37	21.00	26.50	22.37	29.68	32.88	26.03	31.05
sleepy	WS (%)	34.74	37.25	33.33	35.62	30.34	34.25	30.59	42.47	33.33	35.62
headache	WS (%)	15.96	13.73	15.81	17.81	16.67	16.44	19.63	20.55	18.72	21.46
apathy	WS (%)	10.33	11.27	8.12	10.50	6.41	9.13	12.33	10.50	7.76	10.50
tension	WS (%)	13.62	9.80	12.82	14.16	12.82	9.13	14.16	14.61	16.44	15.98
vomit	WS (%)	3.76	0.00	2.56	1.83	1.28	0.91	2.74	0.91	2.74	1.83
nausea	WS (%)	3.29	0.98	0.85	4.11	6.41	6.85	9.59	4.57	6.39	5.48
stomach awareness	WS (%)	11.27	7.35	8.55	8.68	12.39	11.42	14.61	11.87	10.96	13.24
symptom (other)	WS (%)	5.16	5.39	4.70	1.37	4.27	1.37	2.74	1.83	1.83	3.65
MISC	WS (%)	14.79	6.18	10.90	9.04	11.15	13.42	15.62	15.34	9.86	12.60
MS medicine	WS (%)	5.63	0.00	1.28	0.00	0.00	0.00	1.37	0.00	0.00	0.00
decision making	WS (%)	10.33	5.39	8.97	4.11	5.56	5.02	8.68	6.39	5.94	10.05
concentration	WS (%)	17.37	19.61	11.11	12.79	12.39	14.16	17.35	19.63	13.24	15.98
memory	WS (%)	9.39	6.37	8.12	8.22	8.12	9.13	8.68	10.96	7.76	10.05
simple tasks	WS (%)	2.82	4.90	5.56	5.48	2.99	4.11	5.02	6.85	5.02	2.74
balance	WS (%)	11.27	6.37	6.41	7.76	7.69	9.13	14.16	14.61	10.96	13.70
carrying / moving	WS (%)	10.80	8.82	7.26	5.48	8.55	7.76	13.24	14.61	8.22	13.70
hand coordination	WS (%)	6.57	3.43	4.70	3.65	4.27	4.11	6.39	7.76	6.39	8.22
vision	WS (%)	6.57	6.86	5.13	7.76	6.41	7.31	9.13	7.76	5.02	6.85
performance (other)	WS (%)	2.82	4.41	2.56	0.91	1.28	1.37	3.20	1.37	2.28	1.83
more mistakes	(%)	4.23	5.88	3.85	5.48	7.69	5.48	8.22	8.22	1.37	4.11
longer time	(%)	9.86	11.76	8.97	4.11	7.69	4.11	9.59	8.22	6.85	6.85
not finished	(%)	11.27	7.35	7.69	5.48	6.41	6.85	5.48	6.85	6.85	9.59
abandoned	(%)	5.63	1.47	3.85	1.37	0.00	0.00	1.37	0.00	0.00	1.37
not attempt	(%)	8.45	2.94	6.41	6.85	3.85	4.11	5.48	4.11	2.74	4.11
completion (other)	(%)	4.23	2.94	1.28	2.74	2.56	2.74	0.00	2.74	0.00	0.00
cold / flu	WS (%)	16.43	18.14	17.52	18.26	14.53	14.61	15.53	16.44	14.16	15.07
air quality	WS (%)	28.64	31.37	27.78	24.66	26.92	27.40	26.03	31.05	21.00	24.20
noise	WS (%)	46.48	53.92	40.17	47.03	43.59	48.40	46.12	51.60	44.29	52.51
vibration	WS (%)	32.39	35.78	28.21	29.68	35.47	36.53	39.27	39.27	40.64	42.47
too bright	WS (%)	11.27	13.24	14.53	9.59	12.82	12.33	12.79	12.33	12.79	9.13
too dark	WS (%)	11.74	14.71	8.97	10.96	12.82	12.79	13.24	12.33	12.33	15.07
too hot	WS (%)	8.92	8.82	9.40	8.22	11.54	8.68	9.13	8.22	7.31	8.22
too cold	WS (%)	27.23	41.67	33.33	32.42	26.50	34.70	24.66	35.16	23.29	29.22
other (other)	WS (%)	5.16	7.35	4.27	3.65	3.42	4.11	5.94	4.57	4.57	1.83

Table F.1.1: Weighted Severity, Ship F, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	36.62	24.64	22.97	43.92	43.66	36.81	28.92	25.00	28.25	29.94
sleep time	WS (%)	23.47	20.29	19.37	29.63	24.41	25.57	19.12	21.11	19.77	21.56
sleep motions	WS (%)	43.19	32.85	32.88	51.32	54.46	45.21	41.67	32.78	37.85	34.50
sleep MS	WS (%)	6.57	9.66	8.11	11.64	7.04	6.39	6.86	7.22	5.65	7.07
sleep (other)	WS (%)	4.23	6.76	3.15	4.76	6.10	8.22	4.90	7.22	11.30	9.21
mental fatigue	WS (%)	21.60	23.67	18.92	25.40	26.76	26.94	20.59	20.00	21.47	21.76
physical fatigue	WS (%)	25.82	29.95	27.03	35.45	34.27	35.62	27.45	23.33	27.12	27.95
sleepy	WS (%)	31.46	37.68	31.08	37.57	45.54	39.73	30.88	29.44	29.94	34.78
headache	WS (%)	15.96	19.81	17.57	22.75	19.72	22.83	16.18	18.33	14.69	18.14
apathy	WS (%)	10.33	13.04	10.36	10.05	10.33	13.70	7.84	7.78	6.21	9.82
tension	WS (%)	14.55	14.01	12.16	15.34	15.02	13.24	8.82	10.56	10.73	13.05
vomit	WS (%)	2.35	1.93	1.80	1.59	0.00	1.37	1.47	0.56	0.00	1.56
nausea	WS (%)	6.10	5.80	5.86	5.82	4.23	4.11	4.41	5.00	4.52	4.97
stomach awareness	WS (%)	14.55	10.63	11.26	14.29	14.08	11.87	8.33	11.11	10.73	11.43
symptom (other)	WS (%)	0.94	2.90	1.35	2.12	2.35	2.28	0.49	2.78	6.21	2.83
MISC	WS (%)	14.65	13.19	11.35	14.44	13.66	11.92	10.15	10.33	11.53	12.11
MS medicine	WS (%)	1.41	2.90	0.00	0.00	1.41	0.00	0.00	0.00	0.00	0.74
decision making	WS (%)	8.92	9.66	9.01	5.29	7.04	5.94	6.86	4.44	6.21	7.04
concentration	WS (%)	15.49	15.46	12.61	16.40	12.68	14.16	10.78	11.67	11.86	14.46
memory	WS (%)	8.45	12.08	9.01	9.52	9.39	10.05	7.84	8.33	6.78	8.86
simple tasks	WS (%)	5.16	2.90	3.15	3.70	4.23	3.20	3.92	2.78	3.39	4.10
balance	WS (%)	11.27	12.08	12.16	12.70	12.21	15.07	8.82	10.00	11.30	10.93
carrying / moving	WS (%)	10.80	10.63	9.01	12.17	13.62	13.70	7.35	9.44	9.60	10.25
hand coordination	WS (%)	6.10	5.31	6.76	8.99	7.51	8.22	5.39	3.89	2.82	5.82
vision	WS (%)	4.69	4.83	6.31	7.41	6.57	6.85	4.90	4.44	2.82	6.19
performance (other)	WS (%)	0.47	2.42	1.35	1.59	2.35	1.83	0.98	1.67	3.39	2.00
more mistakes	(%)	5.63	5.80	5.41	4.76	8.45	6.85	5.88	1.67	3.39	5.39
longer time	(%)	12.68	8.70	10.81	9.52	9.86	4.11	13.24	3.33	3.39	8.09
not finished	(%)	11 27	8.70	9.46	9.52	7.04	6.85	7.35	5.00	5.08	7.58
abandoned	(%)	2 82	2.90	0.00	1.59	1.41	2.74	1.47	1.67	1.69	1.65
not attempt	(%)	5.63	4.35	6.76	4.76	4.23	4.11	4.41	3.33	5.08	4.83
completion (other)	(%)	1.41	2.90	1.35	3.17	1.41	0.00	1.47	0.00	1.69	1.72
cold / flu	WS (%)	13.62	14.98	12.61	14.29	13.15	18.26	14.22	18.33	12.43	15.40
air quality	WS (%)	25.82	23.67	24.32	22.22	27.70	26.48	26.47	27.22	23.73	26.14
noise	WS (%)	41.78	48.79	38.74	48.15	50.70	52.05	43.14	53.89	40.68	46.95
vibration	WS (%)	38.03	34.30	34.68	41.27	44.13	39.27	37.75	40.56	40.11	37.36
too bright	WS (%)	12.21	9.18	12.16	8.99	15.02	12.33	10.78	10.56	13.56	11.87
too dark	WS (%)	15.02	12.56	14.41	13.23	10.80	12.33	13.24	13.89	14.12	12.87
too hot	WS (%)	6.57	8.70	8.56	6.35	8.45	8.68	8.33	10.00	9.04	8.59
too cold	WS (%)	27.23	32.37	24.32	33.33	28.64	29.68	24.51	34.44	31.64	30.23
other (other)	WS (%)	3.29	4.83	3.60	3.70	6.10	3.20	3.43	5.00	6.21	4.43

Ave.* = average over days 1.5 through 10.5

Table F.1.2: Weighted Severity, Ship F, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	11.46	8.60	13.54	7.29	10.10	19.61	24.73	23.66	20.72	24.73
sleep time	WS (%)	11.46	16.13	9.38	5.21	10.10	10.78	12.90	11.83	10.81	20.43
sleep motions	WS (%)	3.13	4.30	5.21	3.13	9.09	20.59	26.88	39.78	33.33	31.18
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08
sleep (other)	WS (%)	13.54	22.58	11.46	3.13	7.07	4.90	6.45	0.00	0.00	4.30
mental fatigue	WS (%)	8.33	9.68	10.42	9.38	8.08	9.80	13.98	15.05	14.41	9.68
physical fatigue	WS (%)	20.83	25.81	14.58	14.58	21.21	14.71	19.35	22.58	18.02	18.28
sleepy	WS (%)	27.08	37.63	20.83	27.08	28.28	24.51	23.66	35.48	22.52	23.66
headache	WS (%)	5.21	6.45	3.13	1.04	6.06	2.94	3.23	7.53	6.31	8.60
apathy	WS (%)	2.08	9.68	3.13	1.04	1.01	3.92	3.23	2.15	0.90	1.08
tension	WS (%)	4.17	4.30	7.29	4.17	5.05	1.96	3.23	3.23	2.70	2.15
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	4.17	5.38	4.17	0.00	1.01	0.00	0.00	0.00	0.00	0.00
MISC	WS (%)	4.69	4.52	2.50	2.19	1.82	4.12	3.23	5.48	2.16	2.90
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	2.08	2.15	4.17	1.04	0.00	0.98	1.08	2.15	0.00	1.08
concentration	WS (%)	8.33	17.20	4.17	7.29	5.05	5.88	6.45	8.60	2.70	3.23
memory	WS (%)	2.08	3.23	2.08	3.13	2.02	0.98	2.15	3.23	0.00	0.00
simple tasks	WS (%)	0.00	2.15	1.04	0.00	1.01	0.98	1.08	1.08	0.00	0.00
balance	WS (%)	2.08	2.15	3.13	1.04	4.04	2.94	4.30	3.23	1.80	1.08
carrying / moving	WS (%)	5.21	3.23	2.08	1.04	2.02	1.96	3.23	3.23	1.80	2.15
hand coordination	WS (%)	1.04	2.15	0.00	1.04	1.01	1.96	1.08	1.08	0.90	1.08
vision	WS (%)	3.13	4.30	0.00	0.00	0.00	0.98	1.08	2.15	0.00	2.15
performance (other)	WS (%)	1.04	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
more mistakes	(%)	3.13	3.23	0.00	3.13	3.03	2.94	3.23	6.45	2.70	0.00
longer time	(%)	3.13	9.68	3.13	0.00	3.03	2.94	3.23	3.23	2.70	0.00
not finished	(%)	6.25	6.45	9.38	3.13	6.06	8.82	6.45	9.68	5.41	6.45
abandoned	(%)	0.00	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
not attempt	(%)	9.38	6.45	9.38	9.38	6.06	5.88	9.68	6.45	2.70	3.23
completion (other)	(%)	3.13	6.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	11.46	12.90	11.46	15.63	7.07	11.76	12.90	8.60	10.81	8.60
air quality	WS (%)	19.79	29.03	20.83	14.58	16.16	20.59	16.13	23.66	14.41	18.28
noise	WS (%)	41.67	51.61	38.54	42.71	40.40	44.12	39.78	48.39	40.54	51.61
vibration	WS (%)	29.17	40.86	33.33	27.08	35.35	35.29	38.71	39.78	38.74	43.01
too bright	WS (%)	8.33	11.83	15.63	8.33	8.08	8.82	12.90	11.83	9.91	7.53
too dark	WS (%)	8.33	8.60	4.17	2.08	4.04	1.96	8.60	3.23	5.41	5.38
too hot	WS (%)	4.17	6.45	5.21	4.17	7.07	7.84	9.68	4.30	1.80	4.30
too cold	WS (%)	22.92	37.63	30.21	22.92	20.20	19.61	13.98	24.73	10.81	19.35
other (other)	WS (%)	4.17	4.30	3.13	0.00	0.00	0.00	1.08	0.00	0.00	0.00

Table F.1.2: Weighted Severity, Ship F, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	28.28	13.98	12.38	28.74	37.37	24.24	20.83	15.38	13.58	18.91
sleep time	WS (%)	15.15	7.53	9.52	17.24	11.11	13.13	8.33	10.26	4.94	11.38
sleep motions	WS (%)	41.41	25.81	20.95	41.38	43.43	32.32	35.42	24.36	20.99	24.35
sleep MS	WS (%)	1.01	2.15	0.00	1.15	0.00	0.00	0.00	3.85	0.00	0.49
sleep (other)	WS (%)	1.01	0.00	0.00	0.00	5.05	4.04	3.13	6.41	6.17	5.22
mental fatigue	WS (%)	16.16	9.68	10.48	17.24	18.18	15.15	12.50	8.97	8.64	11.89
physical fatigue	WS (%)	19.19	18.28	17.14	26.44	28.28	23.23	20.83	12.82	14.81	19.53
sleepy	WS (%)	29.29	27.96	19.05	28.74	36.36	21.21	23.96	21.79	22.22	26.39
headache	WS (%)	4.04	7.53	4.76	10.34	10.10	7.07	6.25	5.13	4.94	5.82
apathy	WS (%)	1.01	1.08	2.86	2.30	1.01	1.01	0.00	2.56	0.00	2.11
tension	WS (%)	2.02	4.30	0.95	2.30	3.03	1.01	1.04	2.56	2.47	3.05
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	1.23	0.89
MISC	WS (%)	4.24	3.87	1.71	2.76	3.94	2.73	1.25	1.15	1.48	2.99
MS medicine	WS (%)	0 00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	3.03	2.15	1.90	2.30	3.03	1.01	0.00	0.00	0.00	1.48
concentration	WS (%)	7.07	5.38	4.76	10.34	6.06	4.04	4.17	2.56	4.94	6.22
memory	WS (%)	2.02	3.23	0.95	2.30	5.05	1.01	2.08	2.56	2.47	2.14
simple tasks	WS (%)	2.02	2.15	0.95	2.30	1.01	1.01	0.00	0.00	0.00	0.88
balance	WS (%)	4.04	2.15	2.86	4.60	4.04	5.05	3.13	2.56	2.47	2.98
carrying / moving	WS (%)	3.03	3.23	2.86	3.45	4.04	4.04	1.04	1.28	1.23	2.64
hand coordination	WS (%)	2.02	1.08	1.90	2.30	2.02	2.02	0.00	0.00	0.00	1.19
vision	WS (%)	1.01	1.08	1.90	4.60	1.01	1.01	2.08	0.00	0.00	1.39
performance (other)	WS (%)	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	1.23	0.34
more mistakes	(%)	3.03	3.23	2.86	3.45	6.06	6.06	0.00	0.00	0.00	2.76
longer time	(%)	6.06	3.23	5.71	6.90	6.06	3.03	6.25	0.00	0 00	3.59
not finished	(%)	9.09	3.23	11.43	6.90	6.06	3.03	6.25	7.69	7.41	6.80
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
not attempt	(%)	6.06	3.23	8.57	3.45	3.03	0.00	3.13	3.85	3.70	5.45
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50
cold / flu	WS (%)	7.07	7.53	8.57	9.20	8.08	8.08	9.38	12.82	8.64	10.03
air quality	WS (%)	17.17	17.20	15.24	19.54	17.17	16.16	21.88	24.36	14.81	18.79
noise	WS (%)	40.40	44.09	30.48	47.13	44.44	51.52	45.83	56.41	35.80	43.97
vibration	WS (%)	36.36	30.11	31.43	41.38	44.44	34.34	44.79	44.87	43.21	37.49
too bright	WS (%)	9.09	9.68	10.48	10.34	12.12	11.11	13.54	11.54	13.58	10.77
too dark	WS (%)	6.06	4.30	6.67	4.60	5.05	2.02	6.25	3.85	7.41	5.16
too hot	WS (%)	5.05	5.38	7.62	8.05	5.05	8.08	7.29	7.69	7.41	6.14
too cold	WS (%)	17.17	23.66	14.29	22.99	15.15	19.19	18.75	25.64	17.28	20.87
other (other)	WS (%)	0.00	0.00	0.00	0.00	1.01	0.00	0.00	0.00	1.23	0.78

Ave.* = average over days 1.5 through 10.5

Table F.1.3: Weighted Severity, Ship F, any MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	25 64	22.52	26.09	30.89	35.56	44.44	39.68	52.38	45.37	42.86
sleep time	WS (%)	24.79	25.23	23.91	23.58	20.74	29.91	25.40	34.13	34.26	35.71
sleep motions	WS (%)	22.22	14.41	15.22	20.33	31.85	46.15	48.41	65.08	56.48	48.41
sleep MS	WS (%)	13.68	4.50	5.80	5.69	7.41	12.82	18.25	12.70	20.37	15.87
sleep (other)	WS (%)	15.38	22.52	18.12	18.70	14.07	15.38	15.87	11.90	11.11	11.11
mental fatigue	WS (%)	25.64	21.62	22.46	24.39	28.15	26.50	34.13	36.51	32.41	34.92
physical fatigue	WS (%)	33.33	27.03	26.09	26.02	30.37	29.06	37.30	40.48	34.26	40.48
sleepy	WS (%)	41.03	36.94	42.03	42.28	31.85	42.74	35.71	47.62	44.44	44.44
headache	WS (%)	24.79	19.82	24.64	30.89	24.44	28.21	31.75	30.16	31.48	30.95
apathy	WS (%)	17.09	12.61	11.59	17.89	10.37	13.68	19.05	16.67	14.81	17.46
tension	WS (%)	21.37	14.41	16.67	21.95	18.52	15.38	22.22	23.02	30.56	26.19
vomit	WS (%)	6.84	0.00	4.35	3.25	2.22	1.71	4.76	1.59	5.56	3.17
nausea	WS (%)	5.98	1.80	1.45	7.32	11.11	12.82	16.67	7.94	12.96	9.52
stomach awareness	WS (%)	20.51	13.51	14.49	15.45	21.48	21.37	25.40	20.63	22.22	23.02
symptom (other)	WS (%)	5.98	5.41	5 07	2.44	6.67	2.56	4.76	3.17	3.70	6.35
MISC	WS (%)	23.08	7.57	16.74	14.39	18.00	21.54	24.76	22.62	17.78	19.76
MS medicine	WS (%)	10.26	0.00	2.17	0.00	0.00	0.00	2.38	0.00	0.00	0.00
decision making	WS (%)	17.09	8.11	12.32	6.50	9.63	8.55	14.29	9.52	12.04	16.67
concentration	WS (%)	24.79	21.62	15.94	17.07	17.78	21.37	25.40	27.78	24.07	25.40
memory	WS (%)	15.38	9.01	12.32	12.20	12.59	16.24	13.49	16.67	15.74	17.46
simple tasks	WS (%)	5.13	7.21	8.70	9.76	4.44	6.84	7.94	11.11	10.19	4.76
balance	WS (%)	18.80	9.91	8.70	13.01	10.37	14.53	21.43	23.02	20.37	23.02
carrying / moving	WS (%)	15.38	13.51	10.87	8.94	13.33	12.82	20.63	23.02	14.81	22.22
hand coordination	WS (%)	11.11	4.50	7.97	5.69	6.67	5.98	10.32	12.70	12.04	13.49
vision	WS (%)	9.40	9.01	8.70	13.82	11.11	12.82	15.08	11.90	10.19	10.32
performance (other)	WS (%)	4.27	5.41	4.35	1.63	2.22	2.56	5.56	2.38	4.63	3.17
more mistakes	(%)	5.13	8.11	6.52	7.32	11.11	7.69	11.90	9.52	0.00	7.14
longer time	(%)	15.38	13.51	13.04	7.32	11.11	5.13	14.29	11.90	11.11	11.90
not finished	(%)	15.38	8.11	6.52	7.32	6.67	5.13	4.76	4.76	8.33	11.90
abandoned	(%)	10.26	0.00	6.52	2.44	0.00	0.00	2.38	0.00	0.00	2.38
not attempt	(%)	7.69	0.00	4.35	4.88	2.22	2.56	2.38	2.38	2.78	4.76
completion (other)	(%)	5.13	0.00	2.17	4.88	4.44	5.13	0.00	4.76	0.00	0.00
cold / flu	WS (%)	20.51	22.52	21.74	20.33	20.00	17.09	17.46	22.22	17.59	19.84
air quality	WS (%)	35.90	33.33	32.61	32.52	34.81	33.33	33.33	36.51	27.78	28.57
noise	WS (%)	50.43	55.86	41.30	50.41	45.93	52.14	50.79	53.97	48.15	53.17
vibration	WS (%)	35.04	31.53	24.64	31.71	35.56	37.61	39.68	38.89	42.59	42.06
too bright	WS (%)	13.68	14.41	13.77	10.57	16.30	15.38	12.70	12.70	15.74	10.32
too dark	WS (%)	14.53	19.82	12.32	17.89	19.26	22.22	16.67	19.05	19.44	22.22
too hot	WS (%)	12.82	10.81	12.32	11.38	14.81	9.40	8.73	11.11	12.96	11.11
too cold	WS (%)	30.77	45.05	35.51	39.84	31.11	47.86	32.54	42.86	36.11	36.51
other (other)	WS (%)	5.98	9.91	5.07	6.50	5.93	7.69	9.52	7.94	9.26	3.17

Table F.1.3: Weighted Severity, Ship F, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

Parameter	Units	Day of Trial									Ave.*
		6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	
sleep quality	WS (%)	43.86	33.33	32.48	56.86	49.12	50.83	36.11	32.35	40.63	39.00
sleep time	WS (%)	30.70	30.70	28.21	40.20	35.96	35.83	28.70	29.41	32.29	29.98
sleep motions	WS (%)	44.74	38.60	43.59	59.80	64.04	55.83	47.22	39.22	52.08	42.83
sleep MS	WS (%)	11.40	15.79	15.38	20.59	13.16	11.67	12.96	9.80	10.42	12.54
sleep (other)	WS (%)	7.02	12.28	5.98	8.82	7.02	11.67	6.48	7.84	15.63	12.47
mental fatigue	WS (%)	26.32	35.09	26.50	32.35	34.21	36.67	27.78	28.43	32.29	29.81
physical fatigue	WS (%)	31.58	39.47	35.90	43.14	39.47	45.83	33.33	31.37	37.50	34.84
sleepy	WS (%)	33.33	45.61	41.88	45.10	53.51	55.00	37.04	35.29	36.46	41.70
headache	WS (%)	26.32	29.82	29.06	33.33	28.07	35.83	25.00	28.43	22.92	28.21
apathy	WS (%)	18.42	22.81	17.09	16.67	18.42	24.17	14.81	11.76	11.46	16.15
tension	WS (%)	25.44	21.93	22.22	26.47	25.44	23.33	15.74	16.67	17.71	21.33
vomit	WS (%)	4.39	3.51	3.42	2.94	0.00	2.50	2.78	0.98	0.00	2.84
nausea	WS (%)	11.40	10.53	11.11	10.78	7.89	7.50	8.33	8.82	8.33	9.07
stomach awareness	WS (%)	27.19	19.30	21.37	26.47	26.32	21.67	15.74	19.61	19.79	20.82
symptom (other)	WS (%)	1.75	5.26	2.56	3.92	3.51	4.17	0.93	4.90	10.42	4.40
MISC	WS (%)	23.68	20.79	20.00	24.41	22.11	19.50	18.06	17.35	20.00	19.59
MS medicine	WS (%)	2.63	5.26	0.00	0.00	2.63	0.00	0.00	0.00	0.00	1.33
decision making	WS (%)	14.04	15.79	15.38	7.84	10.53	10.00	12.96	7.84	11.46	11.61
concentration	WS (%)	22.81	23.68	19.66	21.57	18.42	22.50	16.67	18.63	17.71	21.20
memory	WS (%)	14.04	19.30	16.24	15.69	13.16	17.50	12.96	12.75	10.42	14.38
simple tasks	WS (%)	7.89	3.51	5.13	4.90	7.02	5.00	7.41	4.90	6.25	6.74
balance	WS (%)	17.54	20.18	20.51	19.61	19.30	23.33	13.89	15.69	18.75	17.47
carrying / moving	WS (%)	17.54	16.67	14.53	19.61	21.93	21.67	12.96	15.69	16.67	16.46
hand coordination	WS (%)	9.65	8.77	11.11	14.71	12.28	13.33	10.19	6.86	5.21	9.61
vision	WS (%)	7.89	7.89	10.26	9.80	11.40	11.67	7.41	7.84	5.21	10.09
performance (other)	WS (%)	0.88	4.39	2.56	2.94	3.51	3.33	1.85	2.94	5.21	3.36
more mistakes	(%)	7.89	7.89	7.69	5.88	10.53	7.50	11.11	2.94	6.25	7.48
longer time	(%)	18.42	13.16	15.38	11.76	13.16	5.00	19.44	5.88	6.25	11.75
not finished	(%)	13.16	13.16	7.69	11.76	7.89	10.00	8.33	2.94	3.13	8.26
abandoned	(%)	5.26	5.26	0.00	2.94	2.63	5.00	2.78	2.94	3.13	2.84
not attempt	(%)	5.26	5.26	5.13	5.88	5.26	7.50	5.56	2.94	6.25	4.37
completion (other)	(%)	2.63	5.26	2.56	5.88	2.63	0.00	2.78	0.00	3.13	2.70
cold / flu	WS (%)	19.30	21.05	16.24	18.63	17.54	26.67	18.52	22.55	15.63	19.76
air quality	WS (%)	33.33	28.95	32.48	24.51	36.84	35.00	30.56	29.41	31.25	32.16
noise	WS (%)	42.98	52.63	46.15	49.02	56.14	52.50	40.74	51.96	44.79	49.42
vibration	WS (%)	39.47	37.72	37.61	41.18	43.86	43.33	31.48	37.25	37.50	37.30
too bright	WS (%)	14.91	8.77	13.68	7.84	17.54	13.33	8.33	9.80	13.54	12.81
too dark	WS (%)	22.81	19.30	21.37	20.59	15.79	20.83	19.44	21.57	19.79	19.21
too hot	WS (%)	7.89	11.40	9.40	4.90	11.40	9.17	9.26	11.76	10.42	10.58
too cold	WS (%)	35.96	39.47	33.33	42.16	40.35	38.33	29.63	41.18	43.75	38.02
other (other)	WS (%)	6.14	8.77	6.84	6.86	10.53	5.83	6.48	8.82	10.42	7.46

Ave.* = average over days 1.5 through 10.5

Table F.1.4: Weighted Severity, Ship F, low MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	16.67	13.33	16.67	23.19	28.00	29.41	25.76	42.03	22.22	30.30
sleep time	WS (%)	12.12	15.00	14.10	20.29	6.67	15.69	10.61	13.04	9.26	25.76
sleep motions	WS (%)	19.70	16.67	11.54	14.49	22.67	35.29	34.85	47.83	38.89	30.30
sleep MS	WS (%)	9.09	1.67	2.56	4.35	1.33	5.88	9.09	1.45	7.41	6.06
sleep (other)	WS (%)	10.61	11.67	11.54	21.74	9.33	15.69	4.55	4.35	0.00	10.61
mental fatigue	WS (%)	19.70	10.00	14.10	17.39	16.00	15.69	21.21	24.64	12.96	21.21
physical fatigue	WS (%)	24.24	16.67	14.10	15.94	22.67	13.73	25.76	21.74	22.22	22.73
sleepy	WS (%)	36.36	30.00	34.62	42.03	21.33	27.45	21.21	31.88	31.48	31.82
headache	WS (%)	16.67	8.33	19.23	27.54	13.33	17.65	16.67	14.49	14.81	19.70
apathy	WS (%)	15.15	1.67	1.28	14.49	1.33	0.00	7.58	7.25	3.70	3.03
tension	WS (%)	12.12	6.67	6.41	20.29	6.67	1.96	6.06	7.25	14.81	10.61
vomit	WS (%)	6.06	0.00	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	7.58	0.00	0.00	1.45	6.67	5.88	4.55	0.00	1.85	1.52
stomach awareness	WS (%)	15.15	3.33	5.13	4.35	10.67	13.73	10.61	5.80	3.70	4.55
symptom (other)	WS (%)	4.55	0.00	2.56	0.00	6.67	0.00	0.00	1.45	0.00	1.52
MISC	WS (%)	22.73	7.50	13.85	11.74	13.60	12.94	21.36	17.83	16.67	15.00
MS medicine	WS (%)	9.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	13.64	6.67	2.56	1.45	4.00	1.96	1.52	1.45	3.70	3.03
concentration	WS (%)	19.70	13.33	6.41	11.59	9.33	7.84	9.09	15.94	14.81	10.61
memory	WS (%)	9.09	3.33	2.56	4.35	5.33	3.92	6.06	7.25	7.41	6.06
simple tasks	WS (%)	1.52	0.00	2.56	8.70	0.00	0.00	1.52	5.80	3.70	0.00
balance	WS (%)	16.67	8.33	2.56	5.80	6.67	1.96	12.12	15.94	14.81	13.64
carrying / moving	WS (%)	6.06	6.67	3.85	5.80	6.67	1.96	9.09	11.59	5.56	10.61
hand coordination	WS (%)	6.06	1.67	2.56	4.35	1.33	0.00	4.55	5.80	1.85	1.52
vision	WS (%)	3.03	3.33	1.28	5.80	6.67	7.84	3.03	5.80	1.85	4.55
performance (other)	WS (%)	1.52	1.67	2.56	0.00	1.33	1.96	0.00	1.45	0.00	1.52
more mistakes	(%)	4.55	5.00	0.00	4.35	8.00	5.88	0.00	8.70	0.00	4.55
longer time	(%)	13.64	0.00	7.69	4.35	8.00	5.88	13.64	8.70	16.67	9.09
not finished	(%)	22.73	5.00	7.69	0.00	0.00	0.00	0.00	0.00	0.00	4.55
abandoned	(%)	13.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
not attempt	(%)	9.09	0.00	3.85	0.00	4.00	0.00	4.55	0.00	5.56	0.00
completion (other)	(%)	4.55	0.00	0.00	4.35	4.00	5.88	0.00	4.35	0.00	0.00
cold / flu	WS (%)	16.67	23.33	23.08	17.39	14.67	11.76	13.64	18.84	20.37	19.70
air quality	WS (%)	21.21	26.67	29.49	31.88	29.33	27.45	25.76	28.99	18.52	27.27
noise	WS (%)	43.94	55.00	42.31	49.28	49.33	54.90	45.45	44.93	50.00	53.03
vibration	WS (%)	30.30	30.00	20.51	28.99	30.67	31.37	28.79	26.09	35.19	34.85
too bright	WS (%)	9.09	15.00	7.69	5.80	10.67	9.80	7.58	11.59	7.41	9.09
too dark	WS (%)	13.64	16.67	12.82	20.29	16.00	25.49	12.12	14.49	18.52	21.21
too hot	WS (%)	13.64	16.67	20.51	17.39	17.33	15.69	10.61	15.94	20.37	16.67
too cold	WS (%)	24.24	28.33	25.64	23.19	24.00	33.33	24.24	20.29	20.37	21.21
other (other)	WS (%)	4.55	15.00	3.85	4.35	5.33	7.84	0.00	4.35	5.56	0.00

Table F.1.4: Weighted Severity, Ship F, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	31.82	17.65	12.12	44.44	38.60	36.67	28.79	15.79	25.49	26.26
sleep time	WS (%)	12.12	11.76	6.06	24.07	19.30	16.67	16.67	12.28	11.76	14.38
sleep motions	WS (%)	36.36	17.65	27.27	48.15	56.14	48.33	40.91	24.56	43.14	32.35
sleep MS	WS (%)	3.03	0.00	6.06	7.41	7.02	3.33	3.03	3.51	7.84	4.74
sleep (other)	WS (%)	4.55	11.76	0.00	3.70	5.26	8.33	1.52	0.00	9.80	7.63
mental fatigue	WS (%)	12.12	15.69	10.61	18.52	24.56	21.67	12.12	12.28	15.69	16.64
physical fatigue	WS (%)	16.67	23.53	16.67	31.48	24.56	33.33	21.21	12.28	25.49	21.32
sleepy	WS (%)	16.67	29.41	24.24	29.63	43.86	43.33	28.79	19.30	23.53	29.84
headache	WS (%)	15.15	15.69	10.61	14.81	10.53	18.33	12.12	14.04	9.80	15.24
apathy	WS (%)	4.55	7.84	3.03	1.85	7.02	8.33	3.03	3.51	3.92	5.19
tension	WS (%)	9.09	1.96	4.55	7.41	8.77	10.00	1.52	1.75	1.96	7.36
vomit	WS (%)	0.00	0.00	1.52	0.00	0.00	1.67	1.52	0.00	0.00	0.63
nausea	WS (%)	1.52	0.00	1.52	3.70	0.00	3.33	1.52	0.00	0.00	2.16
stomach awareness	WS (%)	9.09	0.00	7.58	12.96	10.53	8.33	3.03	1.75	1.96	6.96
symptom (other)	WS (%)	0.00	0.00	1.52	1.85	0.00	3.33	0.00	0.00	1.96	1.34
MISC	WS (%)	15.00	11.76	13.64	18.33	16.32	15.50	13.18	13.68	16.47	15.11
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48
decision making	WS (%)	4.55	1.96	3.03	0.00	3.51	1.67	7.58	0.00	3.92	3.48
concentration	WS (%)	10.61	13.73	7.58	11.11	12.28	11.67	7.58	1.75	7.84	10.67
memory	WS (%)	6.06	5.88	7.58	5.56	7.02	5.00	7.58	1.75	5.88	5.67
simple tasks	WS (%)	3.03	0.00	1.52	1.85	1.75	0.00	3.03	0.00	0.00	1.84
balance	WS (%)	7.58	5.88	6.06	7.41	10.53	10.00	4.55	5.26	3.92	8.40
carrying / moving	WS (%)	4.55	5.88	4.55	5.56	12.28	10.00	4.55	8.77	5.88	6.83
hand coordination	WS (%)	3.03	0.00	1.52	5.56	1.75	3.33	0.00	0.00	0.00	2.36
vision	WS (%)	1.52	3.92	3.03	3.70	3.51	3.33	3.03	1.75	0.00	3.52
performance (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.74
more mistakes	(%)	4.55	0.00	9.09	0.00	10.53	5.00	9.09	0.00	0.00	4.17
longer time	(%)	9.09	5.88	13.64	11.11	10.53	0.00	18.18	0.00	5.88	8.52
not finished	(%)	4.55	0.00	0.00	0.00	5.26	0.00	0.00	0.00	0.00	2.62
abandoned	(%)	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.98
not attempt	(%)	4.55	0.00	4.55	0.00	5.26	0.00	4.55	0.00	5.88	2.73
completion (other)	(%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
cold / flu	WS (%)	16.67	15.69	15.15	12.96	12.28	26.67	21.21	17.54	13.73	17.44
air quality	WS (%)	24.24	23.53	25.76	22.22	26.32	28.33	27.27	26.32	25.49	26.11
noise	WS (%)	42.42	49.02	37.88	37.04	47.37	43.33	39.39	45.61	39.22	45.76
vibration	WS (%)	28.79	23.53	22.73	25.93	31.58	31.67	25.76	31.58	27.45	28.72
too bright	WS (%)	9.09	7.84	6.06	5.56	7.02	10.00	3.03	7.02	3.92	8.07
too dark	WS (%)	21.21	15.69	16.67	16.67	12.28	16.67	15.15	17.54	15.69	16.78
too hot	WS (%)	12.12	13.73	13.64	9.26	12.28	11.67	10.61	15.79	15.69	14.71
too cold	WS (%)	22.73	27.45	13.64	25.93	22.81	26.67	18.18	29.82	29.41	24.29
other (other)	WS (%)	4.55	5.88	4.55	5.56	10.53	5.00	6.06	5.26	5.88	5.48

Ave.* = average over days 1.5 through 10.5

Table F.1.5: Weighted Severity, Ship F, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	37.25	33.33	38.33	40.74	45.00	56.06	55.00	64.91	68.52	56.67
sleep time	WS (%)	41.18	37.25	36.67	27.78	38.33	40.91	41.67	59.65	59.26	46.67
sleep motions	WS (%)	25.49	11.76	20.00	27.78	43.33	54.55	63.33	85.96	74.07	68.33
sleep MS	WS (%)	19.61	7.84	10.00	7.41	15.00	18.18	28.33	26.32	33.33	26.67
sleep (other)	WS (%)	21.57	35.29	26.67	14.81	20.00	15.15	28.33	21.05	22.22	11.67
mental fatigue	WS (%)	33.33	35.29	33.33	33.33	43.33	34.85	48.33	50.88	51.85	50.00
physical fatigue	WS (%)	45.10	39.22	41.67	38.89	40.00	40.91	50.00	63.16	46.30	60.00
sleepy	WS (%)	47.06	45.10	51.67	42.59	45.00	54.55	51.67	66.67	57.41	58.33
headache	WS (%)	35.29	33.33	31.67	35.19	38.33	36.36	48.33	49.12	48.15	43.33
apathy	WS (%)	19.61	25.49	25.00	22.22	21.67	24.24	31.67	28.07	25.93	33.33
tension	WS (%)	33.33	23.53	30.00	24.07	33.33	25.76	40.00	42.11	46.30	43.33
vomit	WS (%)	7.84	0.00	8.33	7.41	5.00	3.03	10.00	3.51	11.11	6.67
nausea	WS (%)	3.92	3.92	3.33	14.81	16.67	18.18	30.00	17.54	24.07	18.33
stomach awareness	WS (%)	27.45	25.49	26.67	29.63	35.00	27.27	41.67	38.60	40.74	43.33
symptom (other)	WS (%)	7.84	11.76	8.33	5.56	6.67	4.55	10.00	5.26	7.41	11.67
MISC	WS (%)	23.53	7.65	20.50	17.78	23.50	28.18	28.50	28.42	18.89	25.00
MS medicine	WS (%)	11.76	0.00	5.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00
decision making	WS (%)	21.57	9.80	25.00	12.96	16.67	13.64	28.33	19.30	20.37	31.67
concentration	WS (%)	31.37	31.37	28.33	24.07	28.33	31.82	43.33	42.11	33.33	41.67
memory	WS (%)	23.53	15.69	25.00	22.22	21.67	25.76	21.67	28.07	24.07	30.00
simple tasks	WS (%)	9.80	15.69	16.67	11.11	10.00	12.12	15.00	17.54	16.67	10.00
balance	WS (%)	21.57	11.76	16.67	22.22	15.00	24.24	31.67	31.58	25.93	33.33
carrying / moving	WS (%)	27.45	21.57	20.00	12.96	21.67	21.21	33.33	36.84	24.07	35.00
hand coordination	WS (%)	17.65	7.84	15.00	7.41	13.33	10.61	16.67	21.05	22.22	26.67
vision	WS (%)	17.65	15.69	18.33	24.07	16.67	16.67	28.33	19.30	18.52	16.67
performance (other)	WS (%)	7.84	9.80	6.67	3.70	3.33	3.03	11.67	3.51	9.26	5.00
more mistakes	(%)	5.88	11.76	15.00	11.11	15.00	9.09	25.00	10.53	0.00	10.00
longer time	(%)	17.65	29.41	20.00	11.11	15.00	4.55	15.00	15.79	5.56	15.00
not finished	(%)	5.88	11.76	5.00	16.67	15.00	9.09	10.00	10.53	16.67	20.00
abandoned	(%)	5.88	0.00	15.00	5.56	0.00	0.00	5.00	0.00	0.00	5.00
not attempt	(%)	5.88	0.00	5.00	11.11	0.00	4.55	0.00	5.26	0.00	10.00
completion (other)	(%)	5.88	0.00	5.00	5.56	5.00	4.55	0.00	5.26	0.00	0.00
cold / flu	WS (%)	25.49	21.57	20.00	24.07	26.67	21.21	21.67	26.32	14.81	20.00
air quality	WS (%)	54.90	41.18	36.67	33.33	41.67	37.88	41.67	45.61	37.04	30.00
noise	WS (%)	58.82	56.86	40.00	51.85	41.67	50.00	56.67	64.91	46.30	53.33
vibration	WS (%)	41.18	33.33	30.00	35.19	41.67	42.42	51.67	54.39	50.00	50.00
too bright	WS (%)	19.61	13.73	21.67	16.67	23.33	19.70	18.33	14.04	24.07	11.67
too dark	WS (%)	15.69	23.53	11.67	14.81	23.33	19.70	21.67	24.56	20.37	23.33
too hot	WS (%)	11.76	3.92	1.67	3.70	11.67	4.55	6.67	5.26	5.56	5.00
too cold	WS (%)	39.22	64.71	48.33	61.11	40.00	59.09	41.67	70.18	51.85	53.33
other (other)	WS (%)	7.84	3.92	6.67	9.26	6.67	7.58	20.00	12.28	12.96	6.67

Table F.1.5: Weighted Severity, Ship F, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	60.42	46.03	58.82	70.83	59.65	65.00	47.62	53.33	57.78	53.44
sleep time	WS (%)	56.25	46.03	56.86	58.33	52.63	55.00	47.62	51.11	55.56	47.83
sleep motions	WS (%)	56.25	55.56	64.71	72.92	71.93	63.33	57.14	57.78	62.22	54.55
sleep MS	WS (%)	22.92	28.57	27.45	35.42	19.30	20.00	28.57	17.78	13.33	21.37
sleep (other)	WS (%)	10.42	12.70	13.73	14.58	8.77	15.00	14.29	17.78	22.22	18.22
mental fatigue	WS (%)	45.83	50.79	47.06	47.92	43.86	51.67	52.38	48.89	51.11	44.95
physical fatigue	WS (%)	52.08	52.38	60.78	56.25	54.39	58.33	52.38	55.56	51.11	50.45
sleepy	WS (%)	56.25	58.73	64.71	62.50	63.16	66.67	50.00	55.56	51.11	55.20
headache	WS (%)	41.67	41.27	52.94	54.17	45.61	53.33	45.24	46.67	37.78	43.04
apathy	WS (%)	37.50	34.92	35.29	33.33	29.82	40.00	33.33	22.22	20.00	28.61
tension	WS (%)	47.92	38.10	45.10	47.92	42.11	36.67	38.10	35.56	35.56	37.30
vomit	WS (%)	10.42	6.35	5.88	6.25	0.00	3.33	4.76	2.22	0.00	5.37
nausea	WS (%)	25.00	19.05	23.53	18.75	15.79	11.67	19.05	20.00	17.78	16.92
stomach awareness	WS (%)	52.08	34.92	39.22	41.67	42.11	35.00	35.71	42.22	40.00	36.78
symptom (other)	WS (%)	4.17	9.52	3.92	6.25	7.02	5.00	2.38	11.11	20.00	7.81
MISC	WS (%)	35 63	28 10	28.24	31.25	27.89	23.50	25.71	22.00	24.00	24.65
MS medicine	WS (%)	6 25	9.52	0.00	0.00	5.26	0.00	0.00	0.00	0.00	2.25
decision making	WS (%)	27.08	26.98	31.37	16.67	17.54	18.33	21.43	17.78	20.00	20.87
concentration	WS (%)	39.58	31.75	35.29	33.33	24.56	33.33	30.95	40.00	28.89	33.34
memory	WS (%)	25.00	30.16	27.45	27.08	19.30	30.00	21.43	26.67	15.56	24.23
simple tasks	WS (%)	14.58	6.35	9.80	8.33	12.28	10.00	14.29	11.11	13.33	12.35
balance	WS (%)	31.25	31.75	39.22	33.33	28.07	36.67	28.57	28.89	35.56	27.75
carrying / moving	WS (%)	35.42	25.40	27.45	35.42	31.58	33.33	26.19	24.44	28.89	27.49
hand coordination	WS (%)	18.75	15.87	23.53	25.00	22.81	23.33	26.19	15.56	11.11	17.93
vision	WS (%)	16.67	11.11	19.61	16.67	19.30	20.00	14.29	15.56	11.11	17.69
performance (other)	WS (%)	2.08	7.94	5.88	6.25	7.02	6.67	4.76	6.67	8.89	6.31
more mistakes	(%)	12.50	14.29	5.88	12.50	10.53	10.00	14.29	6.67	13.33	11.23
longer time	(%)	31.25	19.05	17.65	12.50	15.79	10.00	21.43	13.33	6.67	15.62
not finished	(%)	25.00	23.81	17.65	25.00	10.53	20.00	21.43	6.67	6.67	14.60
abandoned	(%)	12.50	9.52	0.00	6.25	5.26	5.00	7.14	6.67	6.67	5.02
not attempt	(%)	6.25	9.52	5.88	12.50	5.26	15.00	7.14	6.67	6.67	6.14
completion (other)	(%)	6.25	9.52	5.88	12.50	5.26	0.00	7.14	0.00	6.67	4.45
cold / flu	WS (%)	22.92	25.40	17.65	25.00	22.81	26.67	14.29	28.89	17.78	22.27
air quality	WS (%)	45.83	33.33	41.18	27.08	47.37	41.67	35.71	33.33	37.78	39.12
noise	WS (%)	43.75	55.56	56.86	62.50	64.91	61.67	42.86	60.00	51.11	53.66
vibration	WS (%)	54.17	49.21	56.86	58.33	56.14	55.00	40.48	44.44	48.89	47.02
too bright	WS (%)	22.92	9.52	*23.53*	10.42	28.07	16.67	16.67	13.33	24.44	18.34
too dark	WS (%)	25.00	22.22	27.45	25.00	19.30	25.00	26.19	26.67	24.44	22.10
too hot	WS (%)	2.08	9.52	3.92	0.00	10.53	6.67	7.14	6.67	4.44	5.83
too cold	WS (%)	54.17	49.21	58.82	60.42	57.89	50.00	47.62	55.56	60.00	53.85
other (other)	WS (%)	8.33	11.11	9.80	8.33	10.53	6.67	7.14	13.33	15.56	9.72

Ave.* = average over days 1.5 through 10.5

Table G.1.1: Weighted Severity, Ship G, all subjects, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	44.84	39.02	27.36	44.32	42.45	39.68	43.06	44.18	34.59	37.12
sleep time	WS (%)	42.18	42.68	30.82	46.52	38.36	42.06	38.89	49.80	34.28	43.18
sleep motions	WS (%)	45.43	35.37	27.67	41.03	41.19	44.44	38.19	38.96	32.70	30.30
sleep MS	WS (%)	4.72	2.44	5.66	1.10	6.29	5.16	5.21	3.61	3.46	3.79
sleep (other)	WS (%)	13.86	15.85	12.58	14.29	10.69	11.11	10.07	16.87	9.75	13.64
mental fatigue	WS (%)	23.01	26.02	16.35	24.91	24.84	26.59	24.65	30.52	20.44	20.83
physical fatigue	WS (%)	26.84	24.80	19.81	28.94	28.62	27.78	26.39	32.53	22.33	25.00
sleepy	WS (%)	40.12	33.74	30.19	38.10	38.05	37.30	38.19	46.99	33.02	37.50
headache	WS (%)	15.04	19.11	13.52	19.41	24.21	22.62	19.44	18.88	16.98	14.39
apathy	WS (%)	22.42	21.14	21.07	27.47	30.82	32.14	29.51	34.54	27.36	29.55
tension	WS (%)	12.39	17.48	8.49	11.36	14.47	15.48	11.46	15.66	10.38	11.74
vomit	WS (%)	1.18	0.41	0.63	1.10	1.26	3.17	3.47	2.41	1.26	1.52
nausea	WS (%)	6.49	3.66	4.72	3.66	4.72	5.16	6.60	5.22	2.83	2.65
stomach awareness	WS (%)	15.63	10.57	8.49	8.06	11.32	13.10	10.76	9.24	10.38	8.33
symptom (other)	WS (%)	2.36	2.44	1.57	1.83	4.40	3.57	3.47	4.42	5.03	5.68
MISC	WS (%)	16.90	12.93	12.08	10.55	14.53	13.21	14.48	13.37	14.72	12.95
MS medicine	WS (%)	7.96	6.10	5.66	4.40	6.60	2.38	4.17	2.41	2.83	3.41
decision making	WS (%)	10.62	9.35	6.60	10.62	12.89	12.30	11.46	12.05	9.43	6.82
concentration	WS (%)	19.76	17.89	11.95	19.05	23.90	19.05	19.79	26.91	15.41	14.39
memory	WS (%)	10.03	10.57	7.23	12.09	11.95	13.10	11.11	12.85	9.43	10.61
simple tasks	WS (%)	8.26	6.10	4.09	5.49	9.75	8.73	6.60	7.63	7.23	4.17
balance	WS (%)	33.63	23.98	23.58	30.77	38.36	26.98	31.60	28.92	28.93	25.00
carrying / moving	WS (%)	28.02	17.89	20.13	24.18	33.33	22.62	27.78	23.69	25.47	23.11
hand coordination	WS (%)	6.19	6.91	4.72	7.33	12.58	11.11	9.03	10.04	7.86	7.20
vision	WS (%)	8.85	7.72	5.97	5.49	11.32	8.33	7.64	8.43	9.12	9.09
performance (other)	WS (%)	2.36	0.00	1.57	0.37	4.40	2.38	3.82	3.61	2.20	4.17
more mistakes	(%)	9.73	7.32	2.83	7.69	13.21	8.33	5.21	7.23	7.55	1.14
longer time	(%)	25.66	19.51	14.15	21.98	32.08	19.05	12.50	13.25	16.98	9.09
not finished	(%)	7.08	6.10	4.72	6.59	10.38	7.14	6.25	6.02	7.55	0.00
abandoned	(%)	7.96	4.88	4.72	3.30	13.21	7.14	7.29	7.23	3.77	0.00
not attempt	(%)	9.73	3.66	5.66	6.59	8.49	2.38	5.21	4.82	3.77	2.27
completion (other)	(%)	2.65	0.00	1.89	0.00	3.77	1.19	2.08	2.41	2.83	2.27
cold / flu	WS (%)	11.50	7.72	9.12	8.79	12.58	7.94	10.42	14.06	11.64	12.50
air quality	WS (%)	21.83	23.58	19.18	28.57	24.53	23.81	25.35	25.70	24.84	25.38
noise	WS (%)	26.84	22.76	21.70	27.84	28.62	25.00	25.35	28.92	24.21	25.00
vibration	WS (%)	29.79	27.24	22.64	28.21	35.22	27.38	28.13	29.32	25.47	25.76
too bright	WS (%)	8.85	5.69	8.81	9.52	9.75	8.73	8.33	11.65	9.12	10.23
too dark	WS (%)	7.08	6.50	4.40	8.79	5.03	7.94	4.17	6.43	8.18	9.09
too hot	WS (%)	6.49	5.69	6.92	8.79	8.18	8.73	7.64	6.83	8.49	10.23
too cold	WS (%)	10.62	10.57	7.86	12.09	7.23	11.11	9.03	12.85	10.69	10.61
other (other)	WS (%)	5.90	2.44	3.14	1.47	3.14	4.76	4.51	4.42	4.40	6.44

Table G.1.1: Weighted Severity, Ship G, all subjects, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	33.33	36.25	38.61	35.87	26.42	40.65	37.45	34.27	26.67	37.17
sleep time	WS (%)	32.96	38.75	37.62	43.48	30.08	44.72	44.94	41.78	35.24	39.91
sleep motions	WS (%)	31.84	32.08	32.67	23.19	20.33	29.27	25.09	23.00	19.05	32.20
sleep MS	WS (%)	4.12	1.25	3.96	3.99	2.44	2.03	4.87	0.94	0.95	3.47
sleep (other)	WS (%)	10.11	11.25	11.88	14.49	12.20	15.45	19.10	12.21	14.29	13.14
mental fatigue	WS (%)	17.98	19.58	19.80	25.72	14.63	28.46	23.22	28.17	20.00	22.93
physical fatigue	WS (%)	19.10	20.42	22.44	29.71	15.85	27.64	23.22	27.70	22.86	24.84
sleepy	WS (%)	31.09	31.67	37.29	36.59	27.64	33.33	34.46	37.09	29.52	35.36
headache	WS (%)	15.73	17.08	21.12	17.39	14.63	19.92	21.35	22.07	14.29	18.27
apathy	WS (%)	29.59	30.42	33.66	36.23	26.42	32.93	28.46	30.99	22.86	28.82
tension	WS (%)	9.36	12.92	11.22	13.77	7.72	15.45	11.24	13.15	12.38	12.43
vomit	WS (%)	1.50	1.67	2.64	1.09	1.22	2.44	3.75	1.41	1.90	1.79
nausea	WS (%)	3.00	2.08	2.64	3.26	1.22	1.22	3.00	2.35	1.90	3.49
stomach awareness	WS (%)	10.49	5.83	11.88	7.97	4.07	6.10	7.12	4.23	7.62	9.01
symptom (other)	WS (%)	5.24	4.58	3.30	4.35	4.07	1.22	3.00	1.88	1.90	3.39
MISC	WS (%)	11.57	10.75	12.77	11.63	8.17	11.10	12.70	9.86	10.86	12.38
MS medicine	WS (%)	2.25	0.00	4.95	1.09	1.22	0.00	2.25	1.41	0.00	3.11
decision making	WS (%)	10.11	9.58	9.24	10.14	9.35	13.01	10.49	11.27	7.62	10.16
concentration	WS (%)	14.98	13.33	16.17	17.03	12.20	22.36	13.48	20.66	14.29	17.50
memory	WS (%)	9.36	10.00	7.59	11.23	9.76	11.38	10.49	12.68	9.52	10.58
simple tasks	WS (%)	5.99	6.25	5.61	7.97	5.28	7.32	7.12	7.98	9.52	6.90
balance	WS (%)	22.85	24.17	24.42	22.10	16.26	21.54	20.60	23.00	20.00	25.62
carrying / moving	WS (%)	22.47	21.25	22.44	19.20	14.23	17.48	18.35	19.72	14.29	21.88
hand coordination	WS (%)	7.87	8.33	6.60	7.61	5.28	6.50	7.12	8.45	6.67	7.76
vision	WS (%)	8.24	5.42	5.61	8.70	5.28	7.72	8.24	10.80	6.67	7.82
performance (other)	WS (%)	3.00	2.92	1.98	2.54	3.25	1.63	2.62	2.82	1.90	2.50
more mistakes	(%)	2.25	6.25	3.96	4.35	8.54	4.88	3.37	2.82	0.00	5.61
longer time	(%)	6.74	7.50	11.88	10.87	3.66	14.63	7.87	5.63	5.71	13.62
not finished	(%)	1.12	3.75	4.95	4.35	3.66	2.44	0.00	1.41	0.00	4.40
abandoned	(%)	3.37	6.25	4.95	2.17	3.66	2.44	2.25	1.41	2.86	4.68
not attempt	(%)	3.37	5.00	1.98	3.26	0.00	2.44	1.12	1.41	2.86	3.90
completion (other)	(%)	2.25	3.75	1.98	2.17	1.22	0.00	0.00	1.41	0.00	1.68
cold / flu	WS (%)	11.99	12.50	13.86	10.51	13.82	12.20	13.11	13.15	12.38	11.57
air quality	WS (%)	25.47	24.17	23.43	23.19	20.73	22.76	21.72	26.76	16.19	23.54
noise	WS (%)	26.22	26.67	26.40	26.45	26.83	25.61	23.22	28.17	20.00	25.57
vibration	WS (%)	26.59	25.00	30.03	28.99	25.61	30.08	23.60	30.05	19.05	27.27
too bright	WS (%)	10.49	10.42	11.55	10.51	9.76	9.35	10.86	10.33	7.62	9.56
too dark	WS (%)	6.37	10.42	7.59	7.61	4.88	9.35	5.24	8.92	7.62	7.14
too hot	WS (%)	7.12	5.42	8.91	9.42	6.10	4.88	5.62	8.45	0.95	7.10
too cold	WS (%)	10.11	12.08	8.91	8.70	10.16	10.98	12.36	11.74	11.43	10.48
other (other)	WS (%)	5.24	4.58	2.31	3.99	4.88	2.44	3.37	3.76	1.90	3.85

Ave.* = average over days 1.5 through 10.5

Table G.1.2: Weighted Severity, Ship G, no MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	43.41	33.33	24.39	38.33	36.75	31.37	33.33	36.19	24.79	30.56
sleep time	WS (%)	35.66	36.46	24.39	35.83	32.48	27.45	29.52	41.90	24.79	31.48
sleep motions	WS (%)	38.76	34.38	23.58	35.83	30.77	41.18	28.57	30.48	19.66	23.15
sleep MS	WS (%)	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00
sleep (other)	WS (%)	14.73	13.54	13.82	15.83	10.26	5.88	11.43	17.14	11.11	9.26
mental fatigue	WS (%)	8.53	16.67	11.38	15.83	13.68	11.76	14.29	17.14	11.11	10.19
physical fatigue	WS (%)	13.95	16.67	12.20	20.83	15.38	14.71	15.24	23.81	11.11	10.19
sleepy	WS (%)	27.91	21.88	18.70	29.17	22.22	22.55	22.86	35.24	18.80	27.78
headache	WS (%)	5.43	11.46	4.07	9.17	11.11	9.80	3.81	12.38	4.27	6.48
apathy	WS (%)	15.50	8.33	10.57	15.00	20.51	18.63	20.95	22.86	11.97	16.67
tension	WS (%)	5.43	4.17	2.44	6.67	4.27	6.86	2.86	5.71	4.27	2.78
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	0.00	0.00	4.07	1.67	5.13	2.94	2.86	2.86	2.56	5.56
MISC	WS (%)	1.86	1.56	0.98	0.75	1.28	0.88	1.14	1.43	0.26	0.83
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	3.88	3.13	4.88	5.00	3.42	1.96	4.76	6.67	3.42	2.78
concentration	WS (%)	10.85	11.46	6.50	10.83	9.40	6.86	9.52	15.24	6.84	4.63
memory	WS (%)	6.20	6.25	3.25	7.50	4.27	3.92	5.71	7.62	5.98	8.33
simple tasks	WS (%)	1.55	3.13	1.63	2.50	3.42	0.98	0.95	3.81	1.71	1.85
balance	WS (%)	20.93	17.71	13.82	22.50	17.95	14.71	17.14	18.10	8.55	12.96
carrying / moving	WS (%)	15.50	14.58	8.94	16.67	10.26	7.84	10.48	14.29	5.98	10.19
hand coordination	WS (%)	0.78	3.13	1.63	2.50	1.71	2.94	1.90	3.81	0.00	2.78
vision	WS (%)	0.78	2.08	0.81	2.50	3.42	0.98	1.90	1.90	0.85	0.93
performance (other)	WS (%)	3.10	0.00	3.25	0.00	4.27	0.98	1.90	2.86	2.56	4.63
more mistakes	(%)	4.65	6.25	4.88	7.50	5.13	2.94	0.00	2.86	2.56	0.00
longer time	(%)	11.63	15.63	7.32	15.00	10.26	11.76	11.43	14.29	5.13	2.78
not finished	(%)	4.65	3.13	2.44	7.50	7.69	2.94	2.86	5.71	2.56	0.00
abandoned	(%)	6.98	3.13	4.88	2.50	7.69	2.94	8.57	8.57	0.00	0.00
not attempt	(%)	2.33	0.00	2.44	7.50	5.13	2.94	5.71	5.71	0.00	2.78
completion (other)	(%)	2.33	0.00	4.88	0.00	7.69	0.00	2.86	2.86	5.13	2.78
cold / flu	WS (%)	11.63	3.13	8.94	3.33	7.69	4.90	5.71	9.52	11.11	10.19
air quality	WS (%)	13.18	13.54	13.01	22.50	10.26	16.67	13.33	15.24	11.97	16.67
noise	WS (%)	16.28	16.67	15.45	23.33	14.53	15.69	15.24	20.00	13.68	18.52
vibration	WS (%)	21.71	20.83	21.14	26.67	25.64	19.61	20.00	25.71	13.68	19.44
too bright	WS (%)	5.43	3.13	2.44	5.00	2.56	3.92	2.86	5.71	1.71	4.63
too dark	WS (%)	3.10	2.08	1.63	7.50	3.42	2.94	2.86	3.81	7.69	5.56
too hot	WS (%)	1.55	4.17	0.00	4.17	0.85	2.94	3.81	4.76	0.85	3.70
too cold	WS (%)	5.43	7.29	3.25	7.50	2.56	4.90	0.95	12.38	5.98	6.48
other (other)	WS (%)	6.98	0.00	4.88	0.00	5.13	0.98	6.67	3.81	5.13	5.56

Table G.1.2: Weighted Severity, Ship G, no MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	24.51	33.33	27.19	30.48	19.19	27.62	27.45	27.78	28.57	30.45
sleep time	WS (%)	25.49	27.08	30.70	36.19	20.20	39.05	37.25	35.56	42.86	32.33
sleep motions	WS (%)	14.71	22.92	19.30	24.76	14.14	28.57	12.75	17.78	14.29	25.03
sleep MS	WS (%)	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.10
sleep (other)	WS (%)	9.80	8.33	11.40	11.43	12.12	11.43	16.67	8.89	11.90	11.84
mental fatigue	WS (%)	9.80	9.38	11.40	19.05	6.06	15.24	10.78	15.56	23.81	13.24
physical fatigue	WS (%)	8.82	10.42	11.40	20.00	8.08	14.29	12.75	16.67	23.81	14.75
sleepy	WS (%)	15.69	22.92	22.81	29.52	21.21	22.86	20.59	25.56	30.95	24.17
headache	WS (%)	5.88	10.42	7.89	12.38	5.05	13.33	8.82	6.67	9.52	8.31
apathy	WS (%)	18.63	20.83	20.18	24.76	17.17	22.86	13.73	15.56	11.90	17.19
tension	WS (%)	3.92	5.21	4.39	7.62	2.02	4.76	0.98	0.00	9.52	4.41
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
nausea	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stomach awareness	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
symptom (other)	WS (%)	5.88	5.21	3.51	1.90	5.05	0.00	1.96	0.00	2.38	2.82
MISC	WS (%)	0.59	0.31	0.26	0.86	0.30	0.86	0.00	0.33	0.00	0.76
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	2.94	4.17	1.75	5.71	3.03	6.67	1.96	3.33	4.76	3.91
concentration	WS (%)	5.88	8.33	10.53	9.52	4.04	12.38	1.96	10.00	11.90	8.77
memory	WS (%)	5.88	6.25	5.26	6.67	6.06	8.57	2.94	4.44	9.52	6.03
simple tasks	WS (%)	0.98	1.04	1.75	1.90	0.00	0.95	0.98	2.22	4.76	1.90
balance	WS (%)	4.90	10.42	10.53	12.38	2.02	13.33	5.88	8.89	9.52	12.75
carrying / moving	WS (%)	4.90	6.25	8.77	11.43	3.03	9.52	4.90	5.56	7.14	9.28
hand coordination	WS (%)	1.96	2.08	0.88	1.90	0.00	2.86	0.00	1.11	2.38	1.81
vision	WS (%)	0.98	1.04	0.88	1.90	1.01	0.95	0.98	1.11	0.00	1.32
performance (other)	WS (%)	2.94	2.08	1.75	0.00	3.03	0.95	1.96	0.00	2.38	2.04
more mistakes	(%)	0.00	0.00	0.00	0.00	0.00	2.86	0.00	0.00	0.00	2.09
longer time	(%)	0.00	0.00	7.89	8.57	0.00	11.43	2.94	0.00	7.14	7.54
not finished	(%)	0.00	0.00	10.53	2.86	3.03	5.71	0.00	0.00	0.00	3.24
abandoned	(%)	0.00	0.00	7.89	2.86	0.00	2.86	2.94	0.00	0.00	3.25
not attempt	(%)	0.00	0.00	5.26	2.86	0.00	2.86	2.94	0.00	0.00	2.55
completion (other)	(%)	2.94	3.13	2.63	0.00	0.00	0.00	0.00	0.00	0.00	1.96
cold / flu	WS (%)	7.84	12.50	7.02	5.71	6.06	2.86	3.92	2.22	4.76	6.79
air quality	WS (%)	16.67	15.63	13.16	13.33	12.12	14.29	15.69	12.22	11.90	14.28
noise	WS (%)	15.69	16.67	15.79	17.14	13.13	16.19	11.76	15.56	16.67	16.21
vibration	WS (%)	16.67	16.67	20.18	24.76	14.14	22.86	12.75	16.67	16.67	19.78
too bright	WS (%)	2.94	7.29	5.26	5.71	4.04	4.76	3.92	3.33	0.00	3.93
too dark	WS (%)	1.96	6.25	3.51	4.76	4.04	5.71	3.92	6.67	4.76	4.32
too hot	WS (%)	0.00	3.13	0.00	2.86	2.02	2.86	0.98	3.33	0.00	2.21
too cold	WS (%)	3.92	7.29	3.51	5.71	4.04	6.67	6.86	7.78	2.38	5.52
other (other)	WS (%)	5.88	5.21	1.75	0.95	3.03	0.00	1.96	0.00	2.38	3.17

Ave.* = average over days 1.5 through 10.5

Table G.1.3: Weighted Severity, Ship G, any MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	45.71	42.67	29.23	49.02	45.77	45.33	48.63	50.00	40.30	41.67
sleep time	WS (%)	46.19	46.67	34.87	54.90	41.79	52.00	44.26	55.56	39.80	51.28
sleep motions	WS (%)	49.52	36.00	30.26	45.10	47.26	46.67	43.72	45.14	40.30	35.26
sleep MS	WS (%)	7.62	4.00	9.23	1.96	9.95	8.00	8.20	6.25	5.47	6.41
sleep (other)	WS (%)	13.33	17.33	11.79	13.07	10.95	14.67	9.29	16.67	8.96	16.67
mental fatigue	WS (%)	31.90	32.00	19.49	32.03	31.34	36.67	30.60	40.28	25.87	28.21
physical fatigue	WS (%)	34.76	30.00	24.62	35.29	36.32	36.67	32.79	38.89	28.86	35.26
sleepy	WS (%)	47.62	41.33	37.44	45.10	47.26	47.33	46.99	55.56	41.29	44.23
headache	WS (%)	20.95	24.00	19.49	27.45	31.84	31.33	28.42	23.61	24.38	19.87
apathy	WS (%)	26.67	29.33	27.69	37.25	36.82	41.33	34.43	43.06	36.32	38.46
tension	WS (%)	16.67	26.00	12.31	15.03	20.40	21.33	16.39	22.92	13.93	17.95
vomit	WS (%)	1.90	0.67	1.03	1.96	1.99	5.33	5.46	4.17	1.99	2.56
nausea	WS (%)	10.48	6.00	7.69	6.54	7.46	8.67	10.38	9.03	4.48	4.49
stomach awareness	WS (%)	25.24	17.33	13.85	14.38	17.91	22.00	16.94	15.97	16.42	14.10
symptom (other)	WS (%)	3.81	4.00	0.00	1.96	3.98	4.00	3.83	5.56	6.47	5.77
MISC	WS (%)	26.14	20.20	19.08	18.24	22.24	21.60	22.13	22.08	23.13	21.35
MS medicine	WS (%)	12.86	10.00	9.23	7.84	10.45	4.00	6.56	4.17	4.48	5.77
decision making	WS (%)	14.76	13.33	7.69	15.03	18.41	19.33	15.30	15.97	12.94	9.62
concentration	WS (%)	25.24	22.00	15.38	25.49	32.34	27.33	25.68	35.42	20.40	21.15
memory	WS (%)	12.38	13.33	9.74	15.69	16.42	19.33	14.21	16.67	11.44	12.18
simple tasks	WS (%)	12.38	8.00	5.64	7.84	13.43	14.00	9.84	10.42	10.45	5.77
balance	WS (%)	41.43	28.00	29.74	37.25	50.25	35.33	39.89	36.81	40.80	33.33
carrying / moving	WS (%)	35.71	20.00	27.18	30.07	46.77	32.67	37.70	30.56	36.82	32.05
hand coordination	WS (%)	9.52	9.33	6.67	11.11	18.91	16.67	13.11	14.58	12.44	10.26
vision	WS (%)	13.81	11.33	9.23	7.84	15.92	13.33	10.93	13.19	13.93	14.74
performance (other)	WS (%)	1.90	0.00	0.51	0.65	4.48	3.33	4.92	4.17	1.99	3.85
more mistakes	(%)	12.86	8.00	1.54	7.84	17.91	12.00	8.20	10.42	10.45	1.92
longer time	(%)	34.29	22.00	18.46	27.45	44.78	24.00	13.11	12.50	23.88	13.46
not finished	(%)	8.57	8.00	6.15	5.88	11.94	10.00	8.20	6.25	10.45	0.00
abandoned	(%)	8.57	6.00	4.62	3.92	16.42	10.00	6.56	6.25	5.97	0.00
not attempt	(%)	14.29	6.00	7.69	5.88	10.45	2.00	4.92	4.17	5.97	1.92
completion (other)	(%)	2.86	0.00	0.00	0.00	1.49	2.00	1.64	2.08	1.49	1.92
cold / flu	WS (%)	11.43	10.67	9.23	13.07	15.42	10.00	13.11	17.36	11.94	14.10
air quality	WS (%)	27.14	30.00	23.08	33.33	32.84	28.67	32.24	33.33	32.34	31.41
noise	WS (%)	33.33	26.67	25.64	31.37	36.82	31.33	31.15	35.42	30.35	29.49
vibration	WS (%)	34.76	31.33	23.59	29.41	40.80	32.67	32.79	31.94	32.34	30.13
too bright	WS (%)	10.95	7.33	12.82	13.07	13.93	12.00	11.48	15.97	13.43	14.10
too dark	WS (%)	9.52	9.33	6.15	9.80	5.97	11.33	4.92	8.33	8.46	11.54
too hot	WS (%)	9.52	6.67	11.28	12.42	12.44	12.67	9.84	8.33	12.94	14.74
too cold	WS (%)	13.81	12.67	10.77	15.69	9.95	15.33	13.66	13.19	13.43	13.46
other (other)	WS (%)	5.24	4.00	2.05	2.61	1.99	7.33	3.28	4.86	3.98	7.05

Table G.1.3· Weighted Severity, Ship G, any MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	38.79	38.19	45.50	39.18	31.29	50.35	43.64	39.02	25.40	41.56
sleep time	WS (%)	37.58	46.53	41.80	47.95	36.73	48.94	49.70	46.34	30.16	44.90
sleep motions	WS (%)	42.42	38.19	40.74	22.22	24.49	29.79	32.73	26.83	22.22	36.78
sleep MS	WS (%)	6.67	2.08	5.82	6.43	4.08	3.55	7.88	1.63	1.59	5.62
sleep (other)	WS (%)	10.30	13.19	12.17	16.37	12.24	18.44	20.61	14.63	15.87	14.03
mental fatigue	WS (%)	23.03	26.39	24.87	29.82	20.41	38.30	30.91	37.40	17.46	29.31
physical fatigue	WS (%)	25.45	27.08	29.10	35.67	21.09	37.59	29.70	35.77	22.22	31.43
sleepy	WS (%)	40.61	37.50	46.03	40.94	31.97	41.13	43.03	45.53	28.57	42.60
headache	WS (%)	21.82	21.53	29.10	20.47	21.09	24.82	29.09	33.33	17.46	24.74
apathy	WS (%)	36.36	36.81	41.80	43.27	32.65	40.43	37.58	42.28	30.16	36.46
tension	WS (%)	12.73	18.06	15.34	17.54	11.56	23.40	17.58	22.76	14.29	17.69
vomit	WS (%)	2.42	2.78	4.23	1.75	2.04	4.26	6.06	2.44	3.17	2.96
nausea	WS (%)	4.85	3.47	4.23	5.26	2.04	2.13	4.85	4.07	3.17	5.75
stomach awareness	WS (%)	16.97	9.72	19.05	12.87	6.80	10.64	11.52	7.32	12.70	14.83
symptom (other)	WS (%)	4.85	4.17	3.17	5.85	3.40	2.13	3.64	3.25	1.59	3.76
MISC	WS (%)	18.36	17.71	20.32	18.25	13.47	18.72	20.55	16.83	18.10	19.92
MS medicine	WS (%)	3.64	0.00	7.94	1.75	2.04	0.00	3.64	2.44	0.00	5.09
decision making	WS (%)	14.55	13.19	13.76	12.87	13.61	17.73	15.76	17.07	9.52	14.23
concentration	WS (%)	20.61	16.67	19.58	21.64	17.69	29.79	20.61	28.46	15.87	23.23
memory	WS (%)	11.52	12.50	8.99	14.04	12.24	13.48	15.15	18.70	9.52	13.55
simple tasks	WS (%)	9.09	9.72	7.94	11.70	8.84	12.06	10.91	12.20	12.70	10.15
balance	WS (%)	33.94	33.33	32.80	28.07	25.85	27.66	29.70	33.33	26.98	33.92
carrying / moving	WS (%)	33.33	31.25	30.69	23.98	21.77	23.40	26.67	30.08	19.05	29.99
hand coordination	WS (%)	11.52	12.50	10.05	11.11	8.84	9.22	11.52	13.82	9.52	11.62
vision	WS (%)	12.73	8.33	8.47	12.87	8.16	12.77	12.73	17.89	11.11	12.07
performance (other)	WS (%)	3.03	3.47	2.12	4.09	3.40	2.13	3.03	4.88	1.59	2.82
more mistakes	(%)	3.64	10.42	6.35	7.02	14.29	6.38	5.45	4.88	0.00	7.87
longer time	(%)	10.91	12.50	14.29	12.28	6.12	17.02	10.91	9.76	4.76	17.50
not finished	(%)	1.82	6.25	1.59	5.26	4.08	0.00	0.00	2.44	0.00	5.10
abandoned	(%)	5.45	10.42	3.17	1.75	6.12	2.13	1.82	2.44	4.76	5.60
not attempt	(%)	5.45	8.33	0.00	3.51	0.00	2.13	0.00	2.44	4.76	4.73
completion (other)	(%)	1.82	4.17	1.59	3.51	2.04	0.00	0.00	2.44	0.00	1.53
cold / flu	WS (%)	14.55	12.50	17.99	13.45	19.05	19.15	18.79	21.14	17.46	14.76
air quality	WS (%)	30.91	29.86	29.63	29.24	26.53	29.08	25.45	37.40	19.05	29.55
noise	WS (%)	32.73	33.33	32.80	32.16	36.05	32.62	30.30	37.40	22.22	31.64
vibration	WS (%)	32.73	30.56	35.98	31.58	33.33	35.46	30.30	39.84	20.63	32.11
too bright	WS (%)	15.15	12.50	15.34	13.45	13.61	12.77	15.15	15.45	12.70	13.22
too dark	WS (%)	9.09	13.19	10.05	9.36	5.44	12.06	6.06	10.57	9.52	8.98
too hot	WS (%)	11.52	6.94	14.29	13.45	8.84	6.38	8.48	12.20	1.59	10.24
too cold	WS (%)	13.94	15.28	12.17	10.53	14.29	14.18	15.76	14.63	17.46	13.69
other (other)	WS (%)	4.85	4.17	2.65	5.85	6.12	4.26	4.24	6.50	1.59	4.35

Ave.* = average over days 1.5 through 10.5

Table G.1.4: Weighted Severity, Ship G, low MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	45.10	43.21	22.92	45.98	32.35	47.22	38.71	48.72	33.33	31.94
sleep time	WS (%)	41.18	48.15	27.08	51.72	30.39	51.39	30.11	55.13	34.26	31.94
sleep motions	WS (%)	47.06	33.33	21.88	36.78	42.16	38.89	32.26	35.90	30.56	20.83
sleep MS	WS (%)	1.96	0.00	0.00	0.00	4.90	1.39	2.15	1.28	0.93	0.00
sleep (other)	WS (%)	15.69	23.46	8.33	10.34	8.82	15.28	5.38	14.10	6.48	1.39
mental fatigue	WS (%)	32.35	37.04	18.75	26.44	27.45	26.39	19.35	42.31	23.15	22.22
physical fatigue	WS (%)	32.35	27.16	19.79	31.03	28.43	20.83	18.28	37.18	22.22	18.06
sleepy	WS (%)	45.10	40.74	28.13	41.38	38.24	34.72	36.56	55.13	35.19	34.72
headache	WS (%)	10 78	23.46	11.46	19.54	24.51	18.06	13.98	11.54	15.74	6.94
apathy	WS (%)	20.59	25.93	20.83	35.63	35.29	29.17	24.73	38.46	31.48	27.78
tension	WS (%)	12.75	25.93	10.42	13.79	15.69	16.67	7.53	19.23	9.26	11.11
vomit	WS (%)	0.00	0 00	0.00	0.00	0.00	1.39	1.08	0.00	0.00	0.00
nausea	WS (%)	5.88	1.23	2.08	2.30	0.98	5.56	4.30	2.56	0.93	0.00
stomach awareness	WS (%)	22.55	8.64	1.04	4.60	8.82	2.78	4.30	2.56	2.78	1.39
symptom (other)	WS (%)	4.90	0.00	0.00	1.15	4.90	4.17	4.30	3.85	8.33	0.00
MISC	WS (%)	21.47	14.44	10.63	10.34	14.12	10.00	11.29	14.62	16.11	9.17
MS medicine	WS (%)	2.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
decision making	WS (%)	12.75	11.11	3.13	8.05	12.75	11.11	6.45	7.69	10.19	4.17
concentration	WS (%)	19.61	20.99	10.42	19.54	26.47	15.28	15.05	35.90	19.44	19 44
memory	WS (%)	8.82	11.11	6.25	6.90	13.73	4.17	4.30	8.97	8.33	5.56
simple tasks	WS (%)	12.75	6.17	4.17	2.30	11.76	8.33	2.15	5.13	6.48	2.78
balance	WS (%)	32.35	19.75	22.92	27.59	42.16	22.22	27.96	26.92	29 63	19.44
carrying / moving	WS (%)	31.37	12.35	20.83	18.39	41.18	22.22	27.96	25.64	26.85	15.28
hand coordination	WS (%)	8.82	4.94	5.21	3.45	9.80	5.56	4.30	6.41	6.48	1.39
vision	WS (%)	12.75	8.64	7.29	4.60	11.76	5.56	2.15	8.97	10.19	9.72
performance (other)	WS (%)	0.98	0.00	0.00	0.00	5.88	0.00	0.00	0.00	0.93	0.00
more mistakes	(%)	11.76	0.00	0.00	6.90	17.65	4.17	0.00	3.85	13.89	0.00
longer time	(%)	29.41	18.52	15.63	17.24	38.24	12.50	12.90	3.85	19.44	8.33
not finished	(%)	5.88	7.41	9.38	6.90	8.82	8.33	0.00	0.00	8.33	0.00
abandoned	(%)	8.82	7.41	3.13	0.00	5.88	4.17	0.00	0.00	2.78	0.00
not attempt	(%)	14.71	0.00	9.38	3.45	11.76	0.00	0.00	0.00	2.78	0.00
completion (other)	(%)	2.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
cold / flu	WS (%)	8.82	7.41	8.33	10.34	13.73	8.33	11.83	8.97	7.41	5.56
air quality	WS (%)	14.71	29.63	13.54	26.44	25.49	22.22	18.28	20.51	22.22	20.83
noise	WS (%)	25.49	19.75	16.67	22.99	25.49	20.83	17.20	25.64	17.59	16.67
vibration	WS (%)	22.55	22.22	11.46	18.39	29.41	20.83	18.28	20.51	21.30	15.28
too bright	WS (%)	8.82	3.70	6.25	8.05	8.82	6.94	9.68	12.82	9.26	6.94
too dark	WS (%)	12.75	13.58	9.38	13.79	8.82	13.89	5.38	10.26	11.11	15.28
too hot	WS (%)	7.84	3.70	6.25	11.49	7.84	6.94	7.53	3.85	4.63	2.78
too cold	WS (%)	11.76	13.58	12.50	17.24	10.78	13.89	18.28	16.67	18.52	13.89
other (other)	WS (%)	3.92	4.94	1.04	1.15	1.96	4.17	1.08	6.41	1.85	0.00

Table G.1.4: Weighted Severity, Ship G, low MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	23.81	34.48	39.78	32.10	30.56	49.38	30.86	28.07	15.38	35.47
sleep time	WS (%)	26.19	42.53	36.56	43.21	30.56	45.68	35.80	36.84	17.95	37.72
sleep motions	WS (%)	27.38	32.18	27.96	22.22	20.83	22.22	19.75	22.81	7.69	28.56
sleep MS	WS (%)	0.00	0.00	0.00	0.00	1.39	0.00	0.00	3.51	0.00	0.92
sleep (other)	WS (%)	4.76	4.60	10.75	12.35	1.39	14.81	20.99	3.51	7.69	10.01
mental fatigue	WS (%)	17.86	18.39	20.43	24.69	15.28	39.51	24.69	38.60	15.38	25.80
physical fatigue	WS (%)	16.67	21.84	23.66	27.16	18.06	34.57	22.22	31.58	17.95	24.69
sleepy	WS (%)	28.57	32.18	41.94	33.33	25.00	35.80	30.86	40.35	23.08	35.84
headache	WS (%)	5.95	12.64	18.28	11.11	9.72	14.81	18.52	26.32	2.56	14.52
apathy	WS (%)	30.95	29.89	38.71	40.74	27.78	46.91	27.16	33.33	17.95	30.70
tension	WS (%)	5.95	14.94	11.83	13.58	6.94	23.46	11.11	24.56	10.26	13.95
vomit	WS (%)	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.00	0.00	0.19
nausea	WS (%)	0.00	0.00	1.08	0.00	0.00	0.00	0.00	3.51	2.56	1.74
stomach awareness	WS (%)	1.19	0.00	3.23	0.00	0.00	0.00	0.00	0.00	5.13	3.63
symptom (other)	WS (%)	4.76	3.45	3.23	0.00	0.00	0.00	0.00	0.00	0.00	2.27
MISC	WS (%)	8.21	13.79	9.35	12.96	12.92	12.22	11.85	9.47	13.08	12.42
MS medicine	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
decision making	WS (%)	9.52	6.90	10.75	8.64	12.50	13.58	13.58	10.53	7.69	9.53
concentration	WS (%)	16.67	10.34	19.35	18.52	13.89	30.86	17.28	24.56	12.82	19.29
memory	WS (%)	4.76	8.05	5.38	11.11	5.56	7.41	8.64	8.77	7.69	7.66
simple tasks	WS (%)	3.57	5.75	5.38	6.17	6.94	4.94	8.64	5.26	7.69	6.12
balance	WS (%)	27.38	25.29	21.51	18.52	22.22	14.81	18.52	22.81	15.38	24.07
carrying / moving	WS (%)	26.19	22.99	24.73	16.05	20.83	12.35	17.28	22.81	15.38	22.14
hand coordination	WS (%)	4.76	9.20	4.30	8.64	6.94	2.47	9.88	3.51	5.13	5.85
vision	WS (%)	7.14	4.60	7.53	8.64	4.17	6.17	8.64	12.28	7.69	7.82
performance (other)	WS (%)	1.19	1.15	1.08	1.23	0.00	0.00	0.00	0.00	0.00	0.65
more mistakes	(%)	0.00	3.45	6.45	3.70	12.50	7.41	7.41	5.26	0.00	5.49
longer time	(%)	7.14	10.34	6.45	7.41	8.33	18.52	11.11	10.53	7.69	13.87
not finished	(%)	0.00	6.90	0.00	3.70	4.17	0.00	0.00	0.00	0.00	3.67
abandoned	(%)	7.14	6.90	0.00	0.00	8.33	0.00	0.00	0.00	7.69	3.28
not attempt	(%)	7.14	6.90	0.00	0.00	0.00	0.00	0.00	0.00	7.69	3.36
completion (other)	(%)	0.00	3.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34
cold / flu	WS (%)	5.95	10.34	13.98	6.17	6.94	12.35	11.11	15.79	12.82	9.80
air quality	WS (%)	14.29	18.39	18.28	16.05	13.89	16.05	11.11	26.32	10.26	18.87
noise	WS (%)	17.86	22.99	21.51	28.40	26.39	23.46	19.75	29.82	17.95	21.92
vibration	WS (%)	20.24	20.69	25.81	25.93	22.22	25.93	22.22	29.82	10.26	21.23
too bright	WS (%)	8.33	9.20	12.90	11.11	8.33	12.35	6.17	12.28	10.26	9.06
too dark	WS (%)	9.52	11.49	11.83	9.88	8.33	16.05	9.88	19.30	12.82	11.75
too hot	WS (%)	3.57	5.75	6.45	3.70	5.56	6.17	7.41	10.53	0.00	5.89
too cold	WS (%)	15.48	11.49	17.20	16.05	13.89	16.05	16.05	21.05	17.95	15.39
other (other)	WS (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40

Ave.* = average over days 1.5 through 10.5

Table G.1.5: Weighted Severity, Ship G, high MS group, days 1.5 to 6.0 (page 1 of 2)

		Day of Trial									
Parameter	Units	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
sleep quality	WS (%)	46.30	42.03	35.35	53.03	59.60	43.59	58.89	51.52	48.39	50.00
sleep time	WS (%)	50.93	44.93	42.42	59.09	53.54	52.56	58.89	56.06	46.24	67.86
sleep motions	WS (%)	51.85	39.13	38.38	56.06	52.53	53.85	55.56	56.06	51.61	47.62
sleep MS	WS (%)	12.96	8.70	18.18	4.55	15.15	14.10	14.44	12.12	10.75	11.90
sleep (other)	WS (%)	11.11	10.14	15.15	16.67	13.13	14.10	13.33	19.70	11.83	29.76
mental fatigue	WS (%)	31.48	26.09	20.20	39.39	35.35	46.15	42.22	37.88	29.03	33.33
physical fatigue	WS (%)	37.04	33.33	29.29	40.91	44.44	51.28	47.78	40.91	36.56	50.00
sleepy	WS (%)	50.00	42.03	46.46	50.00	56.57	58.97	57.78	56.06	48.39	52.38
headache	WS (%)	30.56	24.64	27.27	37.88	39.39	43.59	43.33	37.88	34.41	30.95
apathy	WS (%)	32.41	33.33	34.34	39.39	38.38	52.56	44.44	48.48	41.94	47.62
tension	WS (%)	20.37	26.09	14.14	16.67	25.25	25.64	25.56	27.27	19.35	23.81
vomit	WS (%)	3.70	1.45	2.02	4.55	4.04	8.97	10.00	9.09	4.30	4.76
nausea	WS (%)	14.81	11.59	13.13	12.12	14.14	11.54	16.67	16.67	8.60	8.33
stomach awareness	WS (%)	27.78	27.54	26.26	27.27	27.27	39.74	30.00	31.82	32.26	25.00
symptom (other)	WS (%)	2.78	8.70	0.00	3.03	3.03	3.85	3.33	7.58	4.30	10.71
MISC	WS (%)	30.56	26.96	27.27	28.64	30.61	32.31	33.33	30.91	31.29	31.79
MS medicine	WS (%)	22.22	21.74	18.18	18.18	21.21	7.69	13.33	9.09	9.68	10.71
decision making	WS (%)	16.67	15.94	12.12	24.24	24.24	26.92	24.44	25.76	16.13	14.29
concentration	WS (%)	30.56	23.19	20.20	33.33	38.38	38.46	36.67	34.85	21.51	22.62
memory	WS (%)	15.74	15.94	13.13	27.27	19.19	33.33	24.44	25.76	15.05	17.86
simple tasks	WS (%)	12.04	10.14	7.07	15.15	15.15	19.23	17.78	16.67	15.05	8.33
balance	WS (%)	50.00	37.68	36.36	50.00	58.59	47.44	52.22	48.48	53.76	45.24
carrying / moving	WS (%)	39.81	28.99	33.33	45.45	52.53	42.31	47.78	36.36	48.39	46.43
hand coordination	WS (%)	10.19	14.49	8.08	21.21	28.28	26.92	22.22	24.24	19.35	17.86
vision	WS (%)	14.81	14.49	11.11	12.12	20.20	20.51	20.00	18.18	18.28	19.05
performance (other)	WS (%)	2.78	0.00	1.01	1.52	3.03	6.41	10.00	9.09	3.23	7.14
more mistakes	(%)	13.89	17.39	3.03	9.09	18.18	19.23	16.67	18.18	6.45	3.57
longer time	(%)	38.89	26.09	21.21	40.91	51.52	34.62	13.33	22.73	29.03	17.86
not finished	(%)	11.11	8.70	3.03	4.55	15.15	11.54	16.67	13.64	12.90	0.00
abandoned	(%)	8.33	4.35	6.06	9.09	27.27	15.38	13.33	13.64	9.68	0.00
not attempt	(%)	13.89	13.04	6.06	9.09	9.09	3.85	10.00	9.09	9.68	3.57
completion (other)	(%)	2.78	0.00	0.00	0.00	3.03	3.85	3.33	4.55	3.23	3.57
cold / flu	WS (%)	13.89	14.49	10.10	16.67	17.17	11.54	14.44	27.27	17.20	21.43
air quality	WS (%)	38.89	30.43	32.32	42.42	40.40	34.62	46.67	48.48	44.09	40.48
noise	WS (%)	40.74	34.78	34.34	42.42	48.48	41.03	45.56	46.97	45.16	40.48
vibration	WS (%)	46.30	42.03	35.35	43.94	52.53	43.59	47.78	45.45	45.16	42.86
too bright	WS (%)	12.96	11.59	19.19	19.70	19.19	16.67	13.33	19.70	18.28	20.24
too dark	WS (%)	6.48	4.35	3.03	4.55	3.03	8.97	4.44	6.06	5.38	8.33
too hot	WS (%)	11.11	10.14	16.16	13.64	17.17	17.95	12.22	13.64	22.58	25.00
too cold	WS (%)	15.74	11.59	9.09	13.64	9.09	16.67	8.89	9.09	7.53	13.10
other (other)	WS (%)	6.48	2.90	3.03	4.55	2.02	10.26	5.56	3.03	6.45	13.10

Table G.1.5: Weighted Severity, Ship G, high MS group, days 6.5 to 10.5, and average (page 2 of 2)

		Day of Trial									
Parameter	Units	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	Ave.*
sleep quality	WS (%)	54.32	43.86	51.04	45.56	32.00	51.67	55.95	48.48	41.67	48.06
sleep time	WS (%)	49.38	52.63	46.88	52.22	42.67	53.33	63.10	54.55	50.00	52.49
sleep motions	WS (%)	58.02	47.37	53.13	22.22	28.00	40.00	45.24	30.30	45.83	45.93
sleep MS	WS (%)	13.58	5.26	11.46	12.22	6.67	8.33	15.48	0.00	4.17	10.53
sleep (other)	WS (%)	16.05	26.32	13.54	20.00	22.67	23.33	20.24	24.24	29.17	18.45
mental fatigue	WS (%)	28.40	38.60	29.17	34.44	25.33	36.67	36.90	36.36	20.83	33.04
physical fatigue	WS (%)	34.57	35.09	34.38	43.33	24.00	41.67	36.90	39.39	29.17	38.42
sleepy	WS (%)	53.09	45.61	50.00	47.78	38.67	48.33	54.76	50.00	37.50	49.70
headache	WS (%)	38.27	35.09	39.58	28.89	32.00	38.33	39.29	39.39	41.67	35.92
apathy	WS (%)	41.98	47.37	44.79	45.56	37.33	31.67	47.62	50.00	50.00	42.59
tension	WS (%)	19.75	22.81	18.75	21.11	16.00	23.33	23.81	21.21	20.83	21.67
vomit	WS (%)	4.94	7.02	8.33	3.33	4.00	8.33	11.90	4.55	8.33	5.98
nausea	WS (%)	9.88	8.77	7.29	10.00	4.00	5.00	9.52	4.55	4.17	10.04
stomach awareness	WS (%)	33.33	24.56	34.38	24.44	13.33	25.00	22.62	13.64	25.00	26.91
symptom (other)	WS (%)	4.94	5.26	3.13	11.11	6.67	5.00	7.14	6.06	4.17	5.30
MISC	WS (%)	28.89	23.68	30.94	23.00	14.00	27.50	28.93	23.18	26.25	27.90
MS medicine	WS (%)	7.41	0.00	15.63	3.33	4.00	0.00	7.14	4.55	0.00	10.22
decision making	WS (%)	19.75	22.81	16.67	16.67	14.67	23.33	17.86	22.73	12.50	19.35
concentration	WS (%)	24.69	26.32	19.79	24.44	21.33	28.33	23.81	31.82	20.83	27.43
memory	WS (%)	18.52	19.30	12.50	16.67	18.67	21.67	21.43	27.27	12.50	19.80
simple tasks	WS (%)	14.81	15.79	10.42	16.67	10.67	21.67	13.10	18.18	20.83	14.67
balance	WS (%)	40.74	45.61	43.75	36.67	29.33	45.00	40.48	42.42	45.83	44.72
carrying / moving	WS (%)	40.74	43.86	36.46	31.11	22.67	38.33	35.71	36.36	25.00	38.51
hand coordination	WS (%)	18.52	17.54	15.63	13.33	10.67	18.33	13.10	22.73	16.67	17.86
vision	WS (%)	18.52	14.04	9.38	16.67	12.00	21.67	16.67	22.73	16.67	16.69
performance (other)	WS (%)	4.94	7.02	3.13	6.67	6.67	5.00	5.95	9.09	4.17	5.10
more mistakes	(%)	7.41	21.05	6.25	10.00	16.00	5.00	3.57	4.55	0.00	10.50
longer time	(%)	14.81	15.79	21.88	16.67	4.00	15.00	10.71	9.09	0.00	21.27
not finished	(%)	3.70	5.26	3.13	6.67	4.00	0.00	0.00	4.55	0.00	6.56
abandoned	(%)	3.70	15.79	6.25	3.33	4.00	5.00	3.57	4.55	0.00	8.07
not attempt	(%)	3.70	10.53	0.00	6.67	0.00	5.00	0.00	4.55	0.00	6.20
completion (other)	(%)	3.70	5.26	3.13	6.67	4.00	0.00	0.00	4.55	0.00	2.72
cold / flu	WS (%)	23.46	15.79	21.88	20.00	30.67	28.33	26.19	25.76	25.00	20.07
air quality	WS (%)	48.15	47.37	40.63	41.11	38.67	46.67	39.29	46.97	33.33	41.10
noise	WS (%)	48.15	49.12	43.75	35.56	45.33	45.00	40.48	43.94	29.17	42.13
vibration	WS (%)	45.68	45.61	45.83	36.67	44.00	48.33	38.10	48.48	37.50	43.96
too bright	WS (%)	22.22	17.54	17.71	15.56	18.67	13.33	23.81	18.18	16.67	17.61
too dark	WS (%)	8.64	15.79	8.33	8.89	2.67	6.67	2.38	3.03	4.17	6.06
too hot	WS (%)	19.75	8.77	21.88	22.22	12.00	6.67	9.52	13.64	4.17	14.64
too cold	WS (%)	12.35	21.05	7.29	5.56	14.67	11.67	15.48	9.09	16.67	12.01
other (other)	WS (%)	9.88	10.53	5.21	11.11	12.00	10.00	8.33	12.12	4.17	7.41

Ave.* = average over days 1.5 through 10.5

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The NATO Performance Assessment Questionnaire (PAQ) was developed to obtain a large database on fatigue, motion sickness and task performance problems associated with ship motions in the naval environment. The PAQ was deployed on seven ships of the NATO Standing Naval Forces Atlantic fleet (STANAVFORLANT), during North Atlantic combat exercises in February and March of 1997. The resulting PAQ database contains over 16,500 completions of the 41-parameter 'Symptoms' and 'Performance' sections of the PAQ. This Technical Memorandum documents the wind and wave environments experienced by the ships, and examines ship motions measured on two of the ships. Detailed tables of the types and severity of symptoms and performance problems are reported for all seven ships, and correlation between ship motions and PAQ parameters are reported for one ship.

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